UNDERSTANDING NON-SUICIDAL SELF-INJURY: PSYCHOLOGICAL AND PSYCHOPHYSIOLOGICAL FACTORS THAT DISTINGUISH SELF-INJURERS FROM NON-INJURERS

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

EZGİ TUNA

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
DOCTOR OF PHILOSOPHY
IN
THE DEPARTMENT OF PSYCHOLOGY

MAY 2017

Approval of the Graduate School of Social Sciences

_____

Prof. Dr. Tülin Gençöz
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Doctor of Philosophy.

_____

Prof. Dr. H. Canan Sümer
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Doctor of Philosophy.

_____

Prof. Dr. Tülin Gençöz
Supervisor

Examining Committee Members

Prof. Dr. Banu Cangöz	(HU, PSY)	_____
Prof. Dr. Tülin Gençöz	(METU, PSY)	_____
Prof. Dr. H. Gülsen Erden	(AU, PSY)	_____
Assoc. Prof. Dr. Deniz Canel Çınarbaş	(METU, PSY)	_____
Assoc. Prof. Dr. Sait Uluç	(HU, PSY)	_____

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name : Ezgi Tuna

Signature :

ABSTRACT

UNDERSTANDING NON-SUICIDAL SELF-INJURY: PSYCHOLOGICAL AND PSYCHOPHYSIOLOGICAL FACTORS THAT DISTINGUISH SELF-INJURERS FROM NON-INJURERS

Tuna, Ezgi
Ph.D., Department of Psychology
Supervisor: Prof. Dr. Tülin Gençöz

May 2017, 220 pages

The purpose of the present study was to explore the frequency, characteristics and functions of non-suicidal self-injury (NSSI), and to identify psychological and psychophysiological factors that distinguish self-injurers from non-injurers, in a sample of Turkish college students. In Study 1, frequency and characteristic features of self-injury were explored, and potential gender differences in NSSI were assessed. Next, self-injurers and non-injurers were compared on emotion dysregulation, self-compassion, self-criticism, positive and negative affect, and thought suppression variables. In Study 2, in a laboratory-based design, pain perception and changes in pain perception as a result of distress were explored. Furthermore, skin conductance levels were recorded to assess physiological reactivity of participants during painful and distressing stimuli.

Findings suggested that NSSI is a frequent and repetitive behavior in the current sample, which commonly serves an emotion regulation function. The only gender difference was found in the methods of self-injury. As expected, NSSI group scored

higher on emotion dysregulation, self-criticism, negative affect, and thought suppression; and lower on self-compassion as compared to non-injurers. Furthermore, self-injurers had higher tolerance to pain; however, pain perception did not change as a function of distress. Although self-injurers reported relatively more distress during a distressing task, both groups showed comparable levels of physiological reactivity and distress tolerance in objective measures. Moreover, self-injurers and controls did not differ in physiological reactivity during painful stimuli. Importance, limitations, and possible implications of the present study, as well as recommendations for future research were discussed.

Keywords: non-suicidal self-injury, emotion dysregulation, pain perception

ÖZ

KENDİNE ZARAR VERME DAVRANIŞINI ANLAMAK : KENDİNE ZARAR VERENLERİ VERMEYENLERDEN AYIRAN PSİKOLOJİK VE PSİKOFİZYOLOJİK FAKTÖRLER

Tuna, Ezgi
Doktora, Psikoloji Bölümü
Tez Yöneticisi: Prof. Dr. Tülin Gençöz

Mayıs 2017, 220 sayfa

Bu çalışmanın amacı kendine zarar verme davranışı (KZVD)'nın sıklığı ve özellikleri ile kendine zarar veren ve vermeyen kişileri birbirinden ayıran psikolojik ve psikofizyolojik faktörleri Türkiye'de üniversite öğrencisi örnekleminde incelemektir. Çalışma 1'de üniversite öğrencilerinin KZVD için taranmasından sonra kendine zarar veren ve vermeyenler olmak üzere iki grup oluşturulmuştur. KZVD'nin sıklığı, özellikleri ve olası cinsiyet farklılıkları araştırılmış; ayrıca bu iki grup duygu düzenleme güçlükleri, öz-eleştiri, düşünceleri bastırma, olumlu ve olumsuz duygulanım, ve öz-şefkat değişkenleri üzerinde kıyaslanmıştır. Çalışma 2'de ise kendine zarar veren ve vermeyen katılımcılarda ağrı algısı ve strese bağlı olarak ağrı algısındaki değişiklikler incelenmiştir. Ayrıca, kendine zarar veren ve vermeyen kişilerin stres toleransı ile ağrı ve stres durumlarındaki fizyolojik uyarılma seviyeleri kıyaslanmıştır. Buna ek olarak stres sonrası uygulanan ağrı verici uyaran sonucu stres seviyelerindeki ve fizyolojik uyarılmalarındaki değişimler kıyaslanmıştır.

Çalışma bulguları KZVD'nin çalışma örnekleminde yaygın, tekrarlayıcı ve çoğunlukla duygu düzenleme işlevine sahip bir davranış olduğunu göstermiştir. Bulunan tek cinsiyet farkı, KZVD yöntemlerinde olmuştur. Beklenildiği gibi, kendine zarar veren kişiler duygularını düzenlemede daha fazla güçlük çekmekte, düşüncelerini daha fazla bastırmakta, daha fazla olumsuz duygulanım yaşamakta, kendilerini daha çok eleştirmekte ve daha az öz-şefkat duymaktadırlar. Bu kişilerin ağrıya toleranslarının daha yüksek olduğu, fakat ağrı algısının stres manipülasyonu sonucu değişmediği bulunmuştur. Kendine zarar verenler stres uygulaması sırasında objektif ölçümlere göre zarar vermeyenlerle benzer fizyolojik tepkiler ve stres toleransı gösterse de, subjektif olarak daha fazla stres rapor etmişlerdir. Son olarak, kendine zarar veren ve vermeyen kişilerin ağrı uygulaması sırasındaki fizyolojik uyarılmaları arasında bir fark bulunamamıştır. Çalışmanın önemi, kısıtlılıkları ve olası klinik sonuçları ile gelecek çalışmalar için öneriler tartışılmıştır.

Anahtar Kelimeler: Kendine zarar verme davranışı, ağrı algısı, stres toleransı

ACKNOWLEDGMENTS

The completion of this dissertation has been one of the most challenging and life-changing accomplishments of my life so far. This would not have been possible without the contributions of many valuable people.

First of all, I would like to express my gratitute to my advisor Prof. Dr. Tülin Gençöz, who has supported me not only during my dissertation project, but also during years that I have been a doctoral student. I am thankful to her because of her professional contribution to my academic life, and also her humor and flexibility during tough times. She will be an inspiration for me in my future academic life. I would also like to express my deep appreciation to the rest of the members of my dissertation committee; Assoc. Prof. Dr. Deniz Canel-Çınarbaş and Prof. Dr. Banu Cangöz, and my jury, including Prof. Dr. Gülsen Erden and Assoc. Prof. Dr. Sait Uluç. They were very helpful and supportive with their smiling faces and thoughtful comments, as well as their important contributions to the finalization of my work.

I would especially thank Prof. Dr. Banu Cangöz for lending me the skin conductance device, and Assoc. Prof. Dr. Ahmet Uysal for sharing with me the cold pressor equipment for my study. This dissertation would not be complete without their generous help. Another special thanks is to Assoc. Prof. Deniz Canel-Çınarbaş, who has taught me, without knowingly, how to be an ethical, just, and hard-working academician.

I would like to thank Dilara Hasdemir and Betül Abut for assisting me during the data collection process. They have been lovely companions and great help during long hours in the laboratory. Further, I would like to express my gratitude to Dr. Aykut Eken who supported me with his MATLAB skills during the data analysis process; you were always patient and available during the times I was confused, so thank you.

I am also very thankful to my dearest friends İpek Demirok, Hilal Döner and Ali Can Gök for their kind love and support during this process, and helping me regulate my anxiety with their encouragement and kindness. I am feeling lucky to have you. Furthermore, I have been classmates with very special and lovely colleagues: Yankı Süsen, Yeliz Şimşek Alphan, İlknur Dilekler, Beyza Ünal, Tuğba Şimşek, Zulal Törenli, Kerim Selvi, Ali Can Gök and İpek Demirok. You have been with me during long and tough days of doctoral courses and clinical supervision, and it could have not been such a rewarding and fun time without you. And Barış Kaykusuz, you have added so many good things to my life lately, I will always appreciate your contribution.

Next, I would like to thank Middle East Technical University (METU) for welcoming me to Ankara and turning it into a home for me. I am deeply proud of being a member of the METU family, knowing that we will always stand strong together.

I am also grateful to TUBITAK who supported me financially during my doctoral studies; and helped me to go through this challanging stage more comfortably.

Lastly, my mother and father, Feride and Hamdi Tuna, it is not easy to find words to describe my love and gratitude for you. Thank you so much for your open arms, kindness, acceptance and support. I love you very, very much.

TABLE OF CONTENTS

LIST OF TABLES

TABLES

LIST OF FIGURES

FIGURES

LIST OF ABBREVIATIONS

NSSI	Non-suicidal self-injury
BPD	Borderline Personality Disorder
DSM	Diagnostic and Statistical Manual of Mental Disorders
ISAS	Inventory of Statements about Self-Injury
SES	Socio-economic Status
DERS	Difficulties in Emotion Regulation Scale
LOSC	Levels of Self-Criticism Scale
PANAS	Positive and Negative Affect Schedule
WBSI	White Bear Suppression Inventory
ANOVA	Analysis of Variance
MANOVA	Multivariate Analysis of Variance
METU	Middle East Technical University
SCL	Skin Conductance Level
SPSS	Statistical Package for the Social Sciences
SCS	Self-Compassion Scale
DTT	Distress Tolerance Test
CPT	Cold Pressor Test
SUD	Subjective Units of Distress

CHAPTER I

INTRODUCTION

> "I am so ... frustrated right now. I have been so busy these last two months (note: high anxiety and terrible socially) looking for houses, going to several house inspections, applying at several banks…and it has finally paid off - my partner and I have been approved for a loan, and also have put a deposit on a house that I love. I am thrilled. Even though things are so great right now and how excited I am - I want to cut. I want to bleed. I want to start the "bad" before it actually comes. There is still another 4 hours before my partner gets home... plenty of time to bleed, clean up, bandage, and go to sleep before he sees me. I hate that I want to self-sabotage. I hate it so much. I want to be better than that. I want to have some self-control. I want to wait for the bad to happen, before preemptively creating bad. This is all so hard. So, so, so hard. I am shaking; I need the sweet release. Why am I so broken... why can't I let something good happen to me..." (BPDisOP, 2016).

The above excerpt was posted on a social news website by an anonymous user under the heading of "self-harm"; among thousands of other posts by others who engaged in non-suicidal self-injury (NSSI). It genuinely expresses a self-injurer's strong urge to cut herself although she knows that it is harmful to her, and demonstrates the complexity of emotions that surround this behavior, including relief, helplessness, and guilt for not being able to stop.

NSSI is a highly dysfunctional disorder, which can be defined as the act of causing deliberate and direct harm to one's own body tissue when there is an absence of suicidal intent (Nock, 2009). Descriptions of NSSI exists throughout the written history such that one of its oldest records is the description of a man in Bible who was crying and cutting himself with stones as a result of being possessed by demon (Nock, 2010). Common examples of NSSI are behaviors such as cutting, burning the skin, hitting self, and preventing a wound from healing. Interestingly, although

deliberately injuring oneself is in great contrast with our basic innate motivation for survival and health (Nock, 2010), NSSI is a highly prevalent condition that threatens especially adolescents and young adults (Klonsky, Victor, & Saffer, 2014; Sutherland, Dawczyka, De Leon, Cripps, & Lewis, 2014). Of great importance, NSSI is characterized by high comorbidity rates with numerous psychological disorders (Jacobson & Gould, 2007), and is considered as a risk factor for future suicide attempts and completed suicides (Joiner, Ribeiro, & Silva, 2012). Despite its frequent existence and apparent negative consequences, NSSI remains a poorly understood construct (Nock & Prinstein, 2005).

Research interest in NSSI has increased tremendously during the past few decades. In 2006, International Society for the Study of Self-Injury was established in an attempt to expand the very brief representation of NSSI in academic journals despite its high presence in clinical and non-clinical settings. Furthermore, in 2013, NSSI was included in the Section III of the of the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-V; American Psychiatric Association, 2013) as a condition that requires further study; this invitation contributed to a recent increase in research interest on NSSI (Dahlström, Zetterqvist, Lundh, & Svedin, 2015). Efforts to understand NSSI has led researchers to focus on two important areas of research, namely risk factors for and functions of self-injurious behavior. A long list of variables was suggested by empirical studies as risk factors for NSSI; including adverse childhood experiences (Kaess et al., 2013), self-criticism (e.g., Xavier, Pinto-Gouveia, Cunha, & Carvalho, 2016), and emotion dysregulation (e.g., Gratz & Chapman, 2007). Furthermore, NSSI seems to be correlated to many other intrapersonal and interpersonal constructs such as negative affect (e.g., Baetens, Willem, Muehlenkamp, & Bijttebier, 2011), lack of social support (e.g., Hankin & Abela, 2011), rumination (Nicolai, Wielgus, & Mezulis, 2016), and self-esteem and cognitive reappraisal (Tatnell, Kelada, Hasking, & Martin, 2014). As for the functions of NSSI, most commonly endorsed function appears to be regulation of negative emotional states (Andover & Morris, 2014),

followed by self-punishment (Klonsky, 2007). For at least some self-injurers, NSSI also appeared to have social reinforcement functions such as help-seeking (Nock & Prinstein, 2004).

Today, although we have more insight in NSSI as compared to the previous decades, we still do not clearly understand why people engage in NSSI while there are numerous alternative behaviors. To illustrate, NSSI has consistently been linked to emotion dysregulation (Andover & Morris, 2014), but not all individuals who have difficulties in regulation of emotions engage in self-injury. Thus, there is a need for comprehensive studies that integrate various associated variables and risk factors. Furthermore, substantial number of studies relies on retrospective accounts of participants, which creates the need for more objective assessments (Andover & Morris, 2014). Moreover, an important gap in the NSSI literature is that most of what we know about NSSI is derived from Western samples. Thus, potential cultural differences in characteristics and functions of NSSI appear to be a neglected area of research. Besides, studies with Turkish samples are very scarce and existing studies suffer from serious methodological limitations. Therefore, building on the previous work, general aims of this dissertation are to explore frequency and characteristics of NSSI in a sample of Turkish young adults, and to identify psychological and psychophysiological factors that contribute to the presence of NSSI, and differentiate self-injurers from non-injurers.

In the following sections, first an overview of the definition, characteristics, diagnostic criteria, prevalence and comorbidity of NSSI will be provided. Following that, the focus will shift towards the functions of NSSI. Next, associated factors of NSSI will be discussed with a special emphasis on emotion dysregulation, self-criticism, negative and positive affect, thought suppression, self-compassion, and pain perception. Finally, objectives and specific hypotheses of the dissertation study will be presented.

1.1. Definition and Characteristics of NSSI

1.1.1. Definition

Broadly speaking, NSSI refers to the destruction of body tissue deliberately and with the knowledge that it will cause physical harm (Nock, 2010). Defining NSSI has not been easy because of the fact that it includes a broad range of different behaviors, and self-injurious behaviors accompany numerous clinical and non-clinical conditions (Yates, 2004). For decades, many different terms and definitions have been employed by research groups all over the world to refer to NSSI. While the term "self-mutilation" was commonly used in the past, because of this term's extremity, many researchers and clinicians started to prefer the term "self-injury" or "NSSI" to refer to self-injurious behaviors (Walsh, 2005). In this dissertation, the terms NSSI and self-injury were preferred and used interchangeably.

As for a formal definition, International Society for the Study of Self-Injury defines NSSI as the "*deliberate, self-inflicted destruction of body tissue without suicidal intent and for purposes not socially sanctioned*" (n.d.). According to this definition, NSSI includes behaviors that directly target body tissue, and indirect behaviors that harm the body but do not include direct tissue damage, are not considered as NSSI. For example, we may give indirect harm to ourselves through behaviors such as smoking, disordered eating or substance abuse; or we may engage in risky behaviors such as dangerous driving; however, in contrast to self-injury, these behaviors do not carry the intention of direct tissue damage. Furthermore, behaviors that injure body tissue but are socially sanctioned (e.g., tattoos, body piercings) are not included among NSSI behaviors (Klonsky, 2007a). Body modifications that are part of a rite of passage or certain religious rituals, which are culturally accepted, are not within the scope of self-injury either (Walsh, 2005). Another crucial point of this definition is that, NSSI is a "deliberate" act, which specifies that it is intentional, not accidental or aimless. However, this intention is not to end one's own life, which draws a boundary between NSSI and suicide (Klonsky, 2007a).

1.1.2. Differentiation from Suicide

It is important to differentiate NSSI from suicidal behaviors. NSSI and suicide are similar in that they both include self-inflicted injury. Furthermore, research suggests that NSSI and suicidal behaviors (ideation, attempt or completed suicide) frequently co-occur (Cheung et al., 2013; Glenn & Klonsky, 2013; Joiner et al., 2012; Nock, Joiner, Gordon, Lloyd-Richardson, Prinstein, 2006; Toprak, Çetin, Güven, Can, & Demircan, 2011). To illustrate, in a study with adult outpatients, those with a history of NSSI reported more suicide attempts and less time since the last attempt as compared to a clinical comparison group (Selby, Bender, Gordon, Nock, & Joiner, 2012). Of great importance, NSSI is considered as a risk factor for suicide, and appears to be a predictor of future suicide attempts (Taliaferro, Muehlenkamp, Borowsky, McMorris, Kugler, 2012). For example, Hawton, Zahl, and Weatherall (2003) followed a large sample of patients (n = 11583) who presented to the hospital following a self-injury episode between 1987 and 1997. Researchers reported that 2.6% of the sample died by suicide by the end of 2000; a rate that was considerably higher than the annual risk of suicide in the general population.

Despite their similarity and co-occurrence, there are considerable differences between NSSI and suicidal behaviors in terms of intent, demographics, prevalence, related cognitions, lethality, chronicity, methods, reactions, and aftermath results (Muehlenkamp, 2005; Walsh, 2005). More specifically, Muehlenkamp (2005) and Walsh (2005) stated that majority of self-injurers engage in NSSI to experience a temporary relief from distressing emotions; whereas in suicide attempts, the aim is to terminate the consciousness permanently through death. In Walsh's (2005) words, the intent of the self-injurer is "not to *terminate* consciousness (as in suicide), but to *modify* it" (pg. 8). Furthermore, self-injury is more common than suicide, has lower lethality, includes more methods, and is more frequent among adolescents; whereas suicide is less common, more lethal, often includes one or two methods of choice, and is more common among adult males (Muehlenkamp, 2005; Walsh, 2005). Because of numerous salient differences, researchers draw a clear

distinction between suicidal behavior and NSSI, and contemporary definitions of NSSI exclude behaviors that have a suicidal intent.

1.1.3. Characteristics of NSSI

Typical methods of NSSI include cutting, burning, scraping or scratching skin, head-banging, hitting self or objects, biting, and wound interference (Klonsky, 2011; Swannell, Martin, Page, Hasking, & St John, 2014; Whitlock, Eckenrode, & Silverman, 2006). Among various methods, cutting oneself (commonly with a sharp object such as a razor or a knife) has been the most frequently reported behavior in the literature (e.g., Glenn & Klonsky, 2013; Heath, Toste, Nedecheva, & Charlebois, 2008; Tantam & Huband, 2009; Jacobson, Muehlenkamp, Miller, & Turner, 2008; Jenkins & Schmitz, 2012). Most of the time individuals engage in more than one method to injure themselves (Glenn & Klonsky, 2013; Klonsky, 2011; Whitlock et al., 2006; Paivio & McCulloch, 2004). To illustrate, a study with adolescents reported that 58% of self-injurers in the sample engaged in more than one type of NSSI (Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007). Oftentimes, wrists and arms are the common locations of self-injury, but locations may expand to other body parts as well (D'Onofrio, 2007). In fact, many self-injurers injure more than one location on their bodies (Sornberger, Heath, Toste, & McLouth, 2012). The majority of self-injurers carry out self-injurious behaviors in secret (Tantam & Huband, 2009).

For many, NSSI has its onset in adolescence (Glenn & Klonsky, 2013; Nock, 2010; Nock & Prinstein, 2004) or even earlier in some cases (Nixon & Heath, 2009; Tantam & Huband, 2009). For example, Heath and colleagues (2008) reported that the majority of the self-injurers in their college sample first engaged in NSSI between the ages of 14 to 16. Dramatically, in a high school sample, 25% of adolescents engaged in self-injury for the first time before the age of 12 (Ross & Heath, 2002). Evidence suggests that age of onset may be associated with severity of this condition. For example, in a study with 957 undergraduates with at least one

lifetime incidence of NSSI, those with an earlier onset reported greater frequency of NSSI behaviors in the last year, more methods of NSSI, greater number of hospital visits related to NSSI, and were more likely to have a suicide plan (Ammerman, Jacobucci, Kleiman, Uyeji, & McCloskey, 2017).

Research suggests that NSSI is a frequently performed and repetitive behavior. For example, in a study with adolescents from Germany and the United States, 9.5% of the sample reported that they hurt themselves more than four times (Plener, Libal, Keller, Fegert, & Muehlenkamp, 2009). Likewise, Hilt, Nock, Lloyd-Richardson, and Prinstein (2008) found that 36% of their adolescent sample engaged in NSSI at least once a month. Moreover, in a college sample, approximately 65% of self-injurers reported more than four incidents in their lifetime (Heath et al., 2008). Notably, for adolescents who continue to engage in NSSI, this condition appears to become more severe over time. For example, in a one-year longitudinal design, among individuals with a history of NSSI, those who still engaged in NSSI at follow-up reported increased frequency, lethality, and number of methods as compared to those who stopped NSSI at follow-up (Andrews, Martin, Hasking, & Page, 2013).

1.2. Diagnostic Criteria

The last few decades witnessed ongoing debates on the conceptualization and diagnostic classification of NSSI (Zetterqvist, 2015). Until recently, NSSI was not recognized as a separate clinical condition. This was partly because NSSI often exists along with other psychological symptoms and was commonly considered as a part of the particular psychological disorder that it occurs with (Yates, 2004), most typically borderline personality disorder (BPD). Despite its high prevalence rates, NSSI was included in DSM-IV (American Psychiatric Association, 2000) exclusively as one of the symptoms of BPD under the name of “self-mutilating behavior”. One of the reasons for NSSI to be considered as a symptom of BPD was

the high comorbidity between the two (e.g., Glenn & Klonsky, 2013; Nock et al., 2006). For example, Glenn and Klonsky (2013) reported that 52% of the adolescents in their clinical sample who met the criteria for NSSI disorder also met criteria for BPD.

Remarkably, although research findings support the association between NSSI and BPD, there is also strong evidence in the literature that NSSI exists independently of BPD (Glenn & Klonsky, 2013; In-Albon, Ruf, & Schmid, 2013). For example, many individuals with eating disorders engage in NSSI, but they do not necessarily have a BPD diagnosis (D'Onofrio, 2007). Although BPD and NSSI often co-exist, Glenn and Klonsky (2013) reported that in a sample of psychiatric adolescent patients, the overlap of BPD and NSSI was no more than the overlap of BPD with Axis I disorders. Moreover, research suggests that NSSI is transdiagnostic (Bentley, Cassiello-Robbins, Vittorio, Sauer-Zavala, & Barlow, 2015), and it occurs across a variety of psychological disorders and non-clinical populations as well (Klonsky, Oltmanns, & Turkheimer, 2003). Given the accumulating evidence that self-injury is a distinct clinical syndrome, nearly for the last three decades, researchers have been proposing a separate diagnostic classification for NSSI (see Muehlenkamp, 2005). Particularly, NSSI has been suggested for inclusion in DSM as "NSSI disorder" (Selby et al., 2012). Researchers and clinicians who make this call argue that a shift in our perspective of NSSI will have numerous benefits including better diagnostic accuracy (Butler & Malone, 2013), as well as more funding for research on and the treatment of self-injury (Glenn & Klonsky, 2013). In line with these proposals, recent research appears to support the classification of NSSI as a distinct condition (e.g., Bentley et al., 2015; Glenn & Klonsky, 2013; In-Albon et al., 2013; Selby et al., 2012).

A major result of these calls has been the inclusion of NSSI into DSM-V (APA, 2013) as a distinct condition that requires further study. The proposed criteria for NSSI in DSM-V are listed in Table 1. A closer look at these criteria reveals that a cut-off of five instances of NSSI in the last year has been included as Criterion A to

differentiate those who engage in self-injury once or twice, from those who self-injure repetitively. Furthermore, the purpose of NSSI has been stated in Criterion B as negative reinforcement of affective or cognitive states, positive reinforcement of desired emotions, and/or social function of resolving interpersonal problems. Criterion C defines negative emotional, cognitive and/or interpersonal states before the act of NSSI such as anxiety and self-criticism, and highlights individuals' difficulty in controlling preoccupation with NSSI-related thoughts. Furthermore, Criterion D excludes socially sanctioned behaviors from the diagnostic definition of NSSI. Next, for an NSSI diagnosis, NSSI must cause distress or impairment in individuals' functioning, which constitutes Criterion E. Lastly, criterion F differentiates those who have a diagnosis of NSSI from those with other mental or medical conditions.

1.3. Prevalence

Prevalence studies on NSSI are mostly based on European and North American samples, and prevalence rates show variability across studies. Part of the variability in prevalence rates in the literature appear to stem from the methodological shortcomings that this area suffers; which adds to our limited understanding of the true prevalence and incidence rates of NSSI. A considerable number of existing studies use different terms and definitions to refer to NSSI (e.g., deliberate self-harm, self-harm, self-injury etc.). Furthermore, many studies use single items or measures that lack appropriate standardization, reliability, and validity to assess NSSI (Butler & Malone, 2013; Swannell et al., 2014). Prevalence rates also seem to vary as a factor of measurement method. For example, checklists of possible self-injurious behaviors appear to result in higher prevalence rates as compared to other measurement tools like yes or no questions (Heath et al., 2008).

Furthermore, the actual prevalence of NSSI in the community is unknown partly related to the fact that majority of self-injurers deal with this condition in silence (D'Onofrio, 2007) and many do not seek medical care (Lloyd-Richardson et al., 2007; Paivio & McCulloch, 2004).

Table 1.1. *Diagnostic Criteria for Non-Suicidal Self-Injury*

A.	In the last year, the individual has, on 5 or more days, engaged in intentional self-inflicted damage to the surface of his or her body of a sort likely to induce bleeding, bruising, or pain (e.g., cutting, burning, stabbing, hitting, excessive rubbing), with the expectation that the injury will lead to only minor or moderate physical harm (i.e., there is no suicidal intent).
B.	The individual engages in the self-injurious behavior with one or more of the following expectations: (1) To obtain relief from a negative feeling or cognitive state. (2) To resolve an interpersonal difficulty. (3) To induce a positive feeling state.
C.	The intentional self-injury is associated with at least one of the following: (1)Interpersonal difficulties or negative feelings or thoughts, such as depression, anxiety, tension, anger, generalized distress, or self-criticism, occurring in the period immediately prior to the self-injurious act. (2) Prior to engaging in the act, a period of preoccupation with the intended behavior that is difficult to control. (3) Thinking about self-injury that occurs frequently, even when it is not acted upon.
D.	The behavior is not socially sanctioned (e.g., body piercing, tattooing, part of a religious or cultural ritual) and is not restricted to picking a scab or nail biting.
E.	The behavior or its consequences cause clinically significant distress or interference in interpersonal, academic, or other important areas of functioning.
F.	The behavior does not occur exclusively during psychotic episodes, delirium, substance intoxication, or substance withdrawal. In individuals with a neurodevelopmental disorder, the behavior is not part of a pattern of repetitive stereotypies. The behavior is not better explained by another mental disorder or medical condition (e.g., psychotic disorder, autism spectrum disorder, intellectual disability, Lesch-Nyhan syndrome, stereotypic movement disorder with self-injury, trichotillomania [hair-pulling disorder], excoriation [skin-picking] disorder).

Note: Reprinted from *Diagnostic and Statistical Manual of Mental Disorders*, by American Psychiatric Association. (5th ed.), 2013, Washington, D.C: Author.

Study samples in prevalence research are generally composed of adolescents and young adults probably because of the fact that NSSI is seen more commonly among these two populations (Klonsky & Olino, 2008). Prevalence rates shows variability across ages and NSSI seems to peak during late adolescence and early adulthood (Yates, 2004). Especially adolescents appear to be at high risk for NSSI; however, reasons behind this are not fully understood. One reason may be the heightened emotional activation and liability, and under-developed prefrontal control mechanisms during adolescence, which leave this population vulnerable to high-risk emotion regulation strategies such as self-injury (Glenn & Klonsky, 2013).

Nevertheless, in one of the largest samples of United States adolescents (*n* = 61,330), Taliaferro and colleagues (2012) reported a prevalence estimate of 7.3% during the last year. In a large sample of non-clinical adults (*n* = 1986), Klonsky and colleagues (2003) found prevalence rate of NSSI as 4% whereas Ross and Heath (2002) reported this rate as 13.9% in a community sample. In an important review of literature, after reviewing 52 studies reporting on the prevalence of NSSI among adolescents across the world, Muehlenkamp, Claes, Havertape and Plener (2012) found the mean lifetime prevalence of NSSI in adolescence as 18%. Building on this finding, Swannell and colleagues (2014) reviewed 119 prevalence studies conducted across all ages, and reported pooled NSSI prevalence rates as 17.2% among adolescents, 13.4% among young adults, and 5.5% among adults. Prevalence studies with clinical samples, however, indicate even higher rates of NSSI. For example, in a psychiatric adolescent sample, 65% of participants reported self-injurious behaviors and 50% of the sample met the DSM criteria for NSSI disorder (Glenn & Klonsky, 2013). As for prevalence rates among college populations, Paivio and McCulloch (2004) indicated that 41% of their female undergraduate sample (*n* = 100) reported having engaged in NSSI. Similarly, Hasking, Monemi, Swannell, and Chia (2008) found the prevalence rate of NSSI in an undergraduate sample (*n* = 211) as 43.6%. In a study with a larger sample (*n* = 2875) of college students in the United States, Whitlock and colleagues (2006) reported the rate of engaging in self-

injurious behaviors as 17%. Lastly, Heath and colleagues (2008) found a prevalence estimate of NSSI in a college sample as approximately 12%.

Prevalence studies conducted with Turkish samples, on the other hand, are scarce; and existing research suffer from some methodological limitations. Studies conducted in Turkey include high school and university student samples, and although rates greatly vary, they are similar to the previously reported rates in the literature. For example, in their study with 862 Turkish high school students, Zoroğlu and colleagues (2003) reported a prevalence rate of 21.4% for NSSI behaviors. In a recent study with a sample of 1656 Turkish high school students, almost one third of the sample reported having engaged in NSSI behaviors at least once (Somer et al., 2015), and in another study it was even higher (i.e., 36.2%; Oktan, 2014). In a sample of 636 undergraduate students, the rate of lifetime NSSI was 15.4% (Toprak et al., 2011). On the other hand, Öksüz and Malhan (2005) surveyed 650 Turkish university students for health risk behaviors and found that 8% of their sample engaged in NSSI behaviors.

1.3.1. Gender Differences

Research indicated inconsistent results in terms of gender differences at rates of NSSI. A number of studies found higher prevalence rates for females (e.g., Howe-Martin, Murrell, & Guarnaccia, 2012; Plener et al., 2009; Ross & Heath, 2002; Sornberger et al., 2012; Taliaferro et al., 2012; Zetterqvist, Lundh, Dahlström, & Svedin, 2013). On the other hand, a considerable number of studies reported that the rates of NSSI are equivalent across genders (e.g., Hilt et al., 2008; Lloyd-Richardson et al., 2007; Klonsky et al., 2003; Klonsky, 2011; Nock et al., 2006; Zoroğlu et al., 2003). Thus, evidence on gender differences appears to be inconclusive.

A possible area to study gender difference may be the applied method and the location of self-injury. For example, Sornberger and colleagues (2012) studied a sample of 7126 adolescents, and found that females engaged in more cutting and

scratching behaviors than males, who reported more burning and hitting. Furthermore, locations of injury also differed between genders. Females more frequently reported injuries to the arms and legs; whereas males reported injuries to the chest, genitals, and face more frequently (Sornberger et al., 2012). Likewise, Zoroğlu and colleagues (2003) compared males and females on the method of self-injury, and reported that females engaged in hair pulling more than males. Lastly, in a recent meta-analysis, Bresin and Schoenleber (2015) reported that women were more likely to engage in cutting, biting, scratching, pinching, hair pulling, and wound healing as compared to men.

These findings suggest that although prevalence rates show great variability across studies, rates of NSSI are alarmingly high especially in adolescent and college populations. Yet it appears that there are inconsistencies between studies in terms of conceptualization and measurement of NSSI (Plener et al., 2009; Swannell et al., 2014); which requires being cautious while interpreting research findings.

1.4. Comorbidity

It has been long known that NSSI is highly prevalent among individuals with major psychiatric diagnoses (Walsh, 2005). NSSI appears to co-occur with numerous clinical conditions and comorbidity rates of NSSI with other diagnoses are remarkable especially in studies with clinical samples. To illustrate, in a study with adolescent psychiatric inpatients, Nock and colleagues (2006) found that 87.6% of self-injurers met criteria for a DSM-IV Axis I diagnosis. More specifically, 62.9% met criteria for externalizing, 51.7% for internalizing, and 59.6% for substance abuse disorders. Moreover, 67.3% of self-injurers in the study also met criteria for a personality disorder. In a retrospective chart view, Selby and colleagues (2012) reported that self-injurers in their adult outpatient sample met diagnostic criteria for mood and bipolar disorders, as well as dysthymia and Cluster A personality disorders. Jacobson and colleagues (2008) compared outpatient adolescents with a history of NSSI (but not suicide attempts) to those (1) only with suicide attempts,

(2) NSSI and suicide attempts, and (3) those with no history of NSSI. Among teens with only NSSI history, 46% also met criteria for major depressive disorder, 33% for disruptive behavior disorders, and 32% for anxiety disorders. The only significant difference between NSSI-only group and other groups was that teens with only NSSI history had more features of BPD than other groups. In their study with inpatient adolescents, In-Albon and colleagues (2013) found that NSSI was most frequently comorbid with major depression, followed by social phobia and posttraumatic stress disorder.

A consistent finding in the literature is that NSSI and eating disorders often co-occur (Claes, Soenens, Vansteenkiste, & Vandereycken, 2012; Tantam & Huband, 2009). For example, Paul, Schroeter, Dahme, and Nutzinger (2002) reported that among their inpatient sample diagnosed with eating disorders, lifetime prevalence of NSSI was 34.4%. Furthermore, Sansone and Levitt (2002) reviewed available studies on self-injury, and reported prevalence rate of NSSI among outpatients with bulimics as 25%, inpatient bulimics as 20%, and outpatient anorexics as 23%. More dramatically, in another study lifetime prevalence of NSSI among eating disorder inpatients was found approximately as 45% (Claes, Klonsky, Muehlenkamp, Kuppens, & Vandereycken, 2010). Research on the association of NSSI and eating disorders suggest that they may have similar etiology and maintaining factors such as regulation of negative emotions (Muehlenkamp et al., 2009).

Recent research suggests that NSSI correlates with a variety of clinical conditions not only in clinical but also in non-clinical populations. For example, in a high school sample Ross and Heath (2002) found that self-injurers had greater levels of anxiety and depressive symptoms as compared to non-injurers. Likewise, in an undergraduate sample, Andover, Pepper, Ryabchenko, Orrico and Gibb (2005) reported greater depressive and anxiety symptoms in participants with a history of self-injury as compared to those with no such history. Similarly, Klonsky and colleagues (2003) reported that self-injurers in their non-clinical adult sample scored higher on anxiety and depression measures. Authors also indicated that participants

with a history of NSSI had higher scores on borderline, schizotypal, dependent, and avoidant personality disorder measures than others with no history of NSSI (Klonsky et al., 2003).

NSSI was also found to be associated with other self-harming behaviors such as alcohol misuse, substance abuse, and overdose of prescribed or over-the-counter drugs (Tantam & Huband, 2009). For example, Hilt and colleagues (2008) reported that among 508 non-clinical adolescents in their study, those who engaged in NSSI were more likely to smoke, take drugs, and engage in maladaptive eating. Similarly, in a sample of Turkish college students Toprak and colleagues (2011) found that those who reported a history of NSSI were more likely to smoke, and abuse alcohol and substances.

1.5. Functions of NSSI

Considerable research effort has been spent on understanding functions of self-injurious behavior. Although many studies in this area simply focus on the purpose of NSSI, from a functional analysis perspective the analysis of the functions of NSSI should include an analysis of its causes or determinants by a careful examination of its antecedents and consequences (Lloyd-Richardson, Nock, & Prinstein, 2008; Nock, 2008). Evidence from numerous studies suggests that NSSI has more than one function, and individuals engage in NSSI usually for multiple reasons simultaneously (Klonsky, 2007; Victor, Styer, & Washburn, 2016). Of great importance, functions of NSSI are likely to change in an individual as he or she repetitively engages in this behavior over time, and with developmental context (Lloyd-Richardson et al., 2008). Furthermore, some functions may be more relevant for certain populations (e.g., adults, inmates, inpatients etc.), and it is important not to generalize functions across different populations (Lloyd-Richardson et al., 2008). Nevertheless, functions commonly listed in the literature include, but not limited to, regulation of distress and anxiety, self-punishment, anti-suicide, communication with others, increasing sense of autonomy and control, and feeling reality (Babiker & Arnold, 1997).

In his review of the empirical research on the functions of NSSI, Klonsky (2007) reviewed 18 studies and identified 7 extensively studied functions of self-injury: Affect regulation, anti-dissociation, anti-suicide, interpersonal boundaries, interpersonal influence, self-punishment, and sensation seeking. Affect regulation function was prominent in all of the reviewed studies in both community and clinical samples, and was reported by adolescents as well as adults. This review suggested that most typical reason for self-injury reported in the literature was regulation of aversive affective states (Klonsky, 2007). Klonsky (2007) integrated the evidence regarding the affect regulation function of NSSI as follows: a) self-injurers experience acute negative affect just before NSSI; b) relief and a decrease in negative affect follows NSSI; c) the majority of self-injurers state an attempt to decrease negative affect as the reason for NSSI; d) in laboratory settings, application of NSSI proxies (e.g., cold pressor task) reduces negative affect and arousal (Klonsky, 2007). Besides, affect regulation, the second function that had the strongest empirical support was self-punishment (reported by 10 to 83% of self-injurers), suggesting that many participants engaged in NSSI to show anger towards themselves (Klonsky, 2007). All the remaining functions that Klonsky (2007) addressed had modest support in the literature.

Findings from recent empirical studies support Klonsky's (2007) conclusions, and among many other functions, the most frequently studied and widely accepted function of NSSI appears to be regulation of emotions. Indeed, empirical and clinical evidence suggests that NSSI is often used to avoid, escape or modify negative affective states (Gratz, 2003; Klonsky et al., 2014; Linehan, 1993). Support for this function comes from both self-report (e.g., Klonsky, 2009) and laboratory studies (e.g., Weinberg & Klonsky, 2012), as well as ecological momentary assessments (e.g., Nock, Prinstein, & Sterba, 2010). For example, Nock and Prinstein (2004) reported that in their adolescent inpatient sample, most common reason for self-injury was the regulation (decrease or increase) of emotional and physiological states, followed by social reinforcement function (e.g., interpersonal communication). Likewise, in an adolescent inpatient (Sim, Adrian, Zeman,

Cassano, & Friedrich, 2009) and an outpatient sample (García-Nieto, Carballo, Hernando, de León-Martinez, & Baca-García, 2015), the most commonly reported reason for NSSI was regulating negative emotions. Similarly, in a sample of college students, most commonly endorsed function of NSSI was managing negative internal states (Muehlenkamp, Brausch, Quigley, & Whitlock, 2013). Furthermore, studies show that negative emotions such as anxiety, sadness, anger, and frustration precede NSSI, and what follows NSSI is a feeling of relief or calm (Klonsky & Muehlenkamp, 2007), at least in the short term (Weinberg & Klonsky, 2012). For example, in a study (Sim et al., 2009) it was found that 70% of the adolescents with a history of NSSI reported negative affective states (i.e., feeling overwhelmed, self-hatred, anger, and sadness) before initiating self-injury, and they indicated that NSSI decreased their negative emotions. In a study using ecological momentary assessment (Armey, Crowther, & Miller, 2011), data from 36 self-injurers were collected at random time intervals for 7-days, and suggested that negative affect, guilt, and anger increased prior to NSSI episodes and decreased afterwards. However, positive affect did not change before or after NSSI episodes.

As stated previously, findings from laboratory studies also support the emotion regulation function of NSSI. In an experimental design, Weinberg and Klonsky (2012) showed that self-injurers experience greater decreases in negative arousal following a self-administered pain-induction as compared to non-injurers. Moreover, in three imagery studies, individuals with a history of NSSI showed decreased psychophysiological activity (e.g., skin conductance, heart rate) following exposure to personalized NSSI-related imagery (Brain, Haines, & Williams, 1998, 2002; Haines, Williams, Brain, & Wilson, 1995); however, such a decrease was not present among those with no history of NSSI (Haines et al., 1995). Furthermore, Niedtfeld and colleagues (2010) conducted an fMRI study with self-injurers diagnosed with BPD and a control group, they induced negative (vs. neutral) affect by using pictures, which was followed by pain induction via thermal stimuli. The results showed that self-injurers with BPD had higher amygdala activation than

controls in both neutral and negative pictures. Although pain induction resulted in a decrease in arousal for both groups, this decrease was more strongly pronounced among self-injurers as compared to controls.

1.5.1. Proposed Models on Functions of NSSI

There were several attempts by researchers to integrate research evidence on functions of NSSI into a comprehensive model. For example, in their *experiential avoidance model*, Chapman, Gratz, and Brown (2006) state that NSSI functions as an avoidance and escape strategy from aversive emotional experiences. Authors argue that these aversive emotional states may be any unwanted and distressing experience such as thoughts, feelings, or somatic states. From this perspective, NSSI is used to terminate these aversive states by decreasing emotional arousal, which makes NSSI a functional behavior at a certain level (Chapman et al., 2006). Accordingly, NSSI is sustained and strengthened by a process of escape conditioning and negative reinforcement (Chapman et al., 2006). In the long term, the association between negative states and NSSI is established, and self-injurious behaviors become automatic escape behaviors in response to these unwanted states. Chapman and colleagues (2006) add that not only NSSI but also a wide range of avoidance behaviors can function as escape strategies from negative emotional experiences; including substance abuse, thought suppression, and binge eating. However, regarding their functionality in relieving distress, this model posits that engaging in escape behaviors may create a rebound effect by leading to increased distress and intense experience of avoided emotions in the long term. Furthermore, these behaviors may prevent individuals from learning that negative emotional states, in fact, are not so threatening, and may hinder self-injurers from expanding their behavioral repertoire to cope with negative emotions (Chapman et al., 2006).

Another comprehensive model which aims at integrating evidence on the development and maintenance of self-injury is the four-function model of NSSI proposed by Nock and Prinstein (2004, 2005) and elaborated by Nock (2008, 2009).

This model identifies four functions of NSSI depending on whether the function is intrapersonal (i.e., automatic) or interpersonal (i.e., social), and whether the reinforcement is positive or negative. According to this model, four reinforcement processes that maintain NSSI are as follows: (1) intrapersonal negative reinforcement (e.g., terminate unwanted emotions), (2) intrapersonal positive reinforcement (e.g., generate emotions or stimulation), (3) interpersonal negative reinforcement (e.g., escape from aversive social situations), and (4) interpersonal positive reinforcement (e.g., help seeking). Based on the four-function model, Nock and colleagues (2010) used ecological momentary assessment to assess NSSI in the natural environment it occurs, and found that among adolescents' reports 64.7% of NSSI episodes had the purpose of intrapersonal negative reinforcement, followed by intrapersonal positive (24.5%), interpersonal negative (14.7%), and least frequently interpersonal positive reinforcement (3.9%). Thus, terminating unwanted intrapersonal states was the most frequent function of the NSSI. Of interest, their results suggested that NSSI serves not only an emotion regulation function, but also cognitive regulation function of unwanted negative thoughts (Nock et al., 2010).

Since literature generally focus on intrapersonal functions of NSSI, Nock (2008) highlighted the importance of understanding social functions of NSSI and proposed a theoretical model of social reinforcement functions. Nock (2008) argued that individuals engage in NSSI to convey a social signal when other less intense modes of communication (e.g., speaking, yelling) do not work. According to this model, NSSI conveys two social messages: signals of distress, which elicits caregiving/help from others, and signals of strength and fitness, which has the aim of expressing the power of the individual via endurance to the injury. Moreover, in some cases NSSI may increase connectedness with others and affiliation to certain groups (e.g., becoming 'blood brothers'; Nock, 2008).

In sum, findings regarding the functions of NSSI are consistently suggesting that NSSI has a self-soothing and tension reducing function (Babiker & Arnold, 1997). In addition, NSSI may also serve the regulation of negative cognitive or somatic

states (e.g., Nock et al., 2010). Furthermore, after emotion regulation function, self-punishment is likely to be an important motivation for self-injury (Klonsky, 2007). Lastly, there is also evidence that NSSI serves social reinforcement functions; yet intrapersonal motivations appear to have stronger support than interpersonal functions.

1.6. Correlates and Risk Factors of NSSI

An important struggle in the literature was to understand causal pathways and determinants of this condition. Majority of the empirical research on risk factors of NSSI focused on childhood experiences as potential predictors of adulthood self-injury (Gratz, 2003). However, considering that NSSI is a complex phenomenon determined by multiple factors (Nock, 2010), there is a long list of associated variables and potential risk factors for NSSI. Before moving on to the discussion of these factors, it is important to clarify the concept of risk factor.

A risk factor is most typically defined as a variable that, when present, increases the likelihood that a disorder will develop (Fox et al., 2015). It is crucial to note that a risk factor does not cause the disorder (Fox et al., 2015), but it potentially increases the probability that the disorder will occur. Of great importance, Kraemer and colleagues (1997) suggest that in order to define a variable as a risk factor, it should be assessed before the outcome, and it should distinguish those who develop the outcome from those who do not. If both the risk factor and the outcome are assessed simultaneously, then we should call them "correlates" (Kraemer et al., 1997). In this dissertation, the term risk factor was used accordingly.

1.6.1. Brief Literature Review

From a developmental psychopathology framework, it is important to understand both distal risk factors, that is, factors that predispose individuals to future self-injurious behavior, and proximal risk factors, that is factors that actually precipitate the engagement in self-injury, of NSSI (Guerry & Prinstein, 2010). A great variety

of distal and proximal, as well as intrapersonal and interpersonal variables received empirical support as correlated and risk factors of NSSI. These variables include, but not limited to, emotional abuse (e.g. Goldstein, Flett, Wekerle, & Wall, 2009), emotion dysregulation (e.g., Wilcox et al., 2012), a negative attributional style (e.g., Tatnell et al., 2014), loneliness (Glenn & Klonsky, 2013), rumination (e.g. Hoff & Muehlenkamp, 2009), the presence of a psychiatric disorder (e.g., Nock et al., 2006), difficulties in social problem-solving (e.g., Nock & Mendes, 2008), and lack of social support (Muehlenkamp et al., 2013). However, it is not clear why and how these factors individually or together contribute to NSSI (Nock, 2010).

To cite some of the empirical evidence, in a prospective design, Hankin and Abela (2011) investigated contribution of distal and proximal risk factors to the onset of NSSI in adolescence over 2.5 years. Among various distal risk factors parents' past depression and adolescents' negative cognitive style predicted self-injury. As for proximal risk factors; stressors, depressive symptoms, social support, negative social interactions, excessive reassurance seeking, hopelessness and parents' onset of depression predicted NSSI. When both set of factors were included in the model, a negative cognitive style, onset of maternal depression, recent depressive symptoms, and lack of support predicted onset of NSSI after controlling for suicidality. Similarly, in a 18-month prospective study, the interaction of a negative attributional style and stressful life events predicted future NSSI (Guerry & Prinstein, 2010). In a cross-sectional design, Taliaferro and colleagues (2012) analyzed data from a large scale nation-based survey and explored factors that distinguished adolescents with a history of NSSI from others with no such history and with a history of NSSI plus suicide attempts. Factors that consistently distinguished the two NSSI groups from the no-NSSI group for both genders were the presence of a mental health problem, depressive symptoms, hopelessness, physical abuse, lower levels of parent connectedness, running away from home, and maladaptive eating patterns. Moreover, for females a history of sexual abuse, lower

levels of connectedness to non-parental adults, and smoking; and for males engaging in violent acts were additional distinguishing factors.

Among many other variables, adverse childhood experiences such as abuse and neglect has gained empirical support as risk factors for future self-injurious behavior, and among all family-related variables, especially sexual abuse has received great systemic attention (Gratz, 2003). However, the relationship between child abuse and NSSI appears to be moderate (Klonsky & Muehlenkamp, 2007); and of importance, research in this area heavily relies on retrospective data. To illustrate relevant evidence, Kaess and colleagues (2013) found that all types of adverse childhood experiences were associated with NSSI in adolescents and young adults, with antipathy and neglect from the mother having the strongest association. Furthermore, in a large-scale sample, lower perceived family support and higher attachment anxiety predicted NSSI onset in 12 months (Tatnell et al., 2014). In a college sample, 53% of the self-injurers reported that they experienced physical, sexual, and/or emotional abuse; however only emotional abuse remained significant when all control variables were included in the model (Whitlock et al., 2006). However, Klonsky and Moyer (2008) conducted a meta-analysis to clarify the relationship between NSSI and sexual abuse, and reported a relatively small association between the two across 45 samples. They concluded that sexual abuse explains very little unique variance in NSSI, suggesting that it does not play a crucial role in the development and maintenance of NSSI. In fact these two concepts may be associated partly because of their correlations with similar psychiatric risk factors such as depression rather than a unique or etiological link between the two (Klonsky & Moyer, 2008).

1.6.2. Theoretical Models

There have been numerous theoretical explanations addressing development and maintenance of NSSI including models from psychoanalytic, object relations, behavioral, attachment, and biological perspectives. To illustrate, Kernberg (2012)

stated that self-destructive behaviors, including self-injury, reflect what Freud named as the death drive; which is developed as a result of pathological aggression which is directed towards oneself. Likewise, in Hermann (1936)'s theory of self-injury, a frustrated wish to attach to the mother is a traumatic experience for the child, and causes aggression and extreme pain. This frustrated wish to cling to the mother reactively evolves into a desire to separate from the mother; and later the person repeats this attachment trauma to overcome and gain control over it. Even though self-destructive behavior is painful, it provides autonomy and detachment from the primal object (Hermann, 1936; as cited in Geyskens & Van Haute, 2007). However, majority of the proposed models lack empirical support (Nock, 2010).

One of the most prominent theories that shaped our understanding of NSSI is Linehan's (1993) biosocial theory for Borderline Personality Disorder (BPD). From a transactional framework in which the individual and environment are constantly interactive and interdependent, Linehan (1993) states that biological vulnerabilities and an invalidating childhood environment interact to result in emotion dysregulation, which contributes to NSSI as a way to regulate emotions. Linehan (1993) defines an invalidating environment as the one in which individuals' expression of internal experiences, such as expression of positive or negative affect, is not validated; but rather discouraged or punished. In such an environment, children cannot learn how to name and modulate their emotions, cannot trust their internal affective cues, develop excessive emotional vulnerability, and have difficulties in tolerating and coping with negative affective states. Later, NSSI develops as a dysfunctional coping strategy with difficult affective states (Linehan, 1993).

Yates (2004) applied a developmental psychopathology framework and identified pathways in which childhood maltreatment contributes to NSSI. According to this model, as a result of traumatic experiences, children may not develop various areas of developmental and age-salient capacities; and may engage in a variety of maladaptive strategies such as self-injury. These capacities include, but not limited

to, the motivational base (seeing relationships as trustworthy and rewarding), the attitudinal base (a view of self as worthy and competent), and the emotional base (healthy affective development and regulation). Thus, NSSI functions as a mechanism to compensate these areas of vulnerability and as a maladaptive way to achieve regulation as well as connectedness to others (Yates, 2004).

Similarly, Nock (2009, 2010) proposed a vulnerability-distress model that integrates different areas of research and explains how a variety of vulnerability factors contributes to the development and maintenance of NSSI when individuals experience a stressful event. According to this model, distal risk factors such as childhood maltreatment and emotional reactivity increase the risk for NSSI by triggering intrapersonal and interpersonal vulnerability factors. Examples to these vulnerabilities are high aversive emotions and cognitions, and poor distress tolerance as for intrapersonal; and poor social problem solving and communication skills as for interpersonal areas of vulnerability. These vulnerability factors predispose people to develop dysfunctional responses to distress such as experiencing over-arousal after a distressing event, and engaging in extreme emotion-modulating behaviors such as NSSI. Nock (2009) argues that up to this point, etiological pathways are common with many psychological disorders and are not specific to NSSI. Here NSSI-specific processes contribute to the presence of NSSI instead of other alternative behaviors. Nock (2009) proposes a variety of risk factors that are specific to NSSI; including social learning, self-punishment, social signaling (i.e., as a way of communicating), and pain analgesia/opiate which increase the likelihood of engaging specifically in NSSI.

Overall, both empirical studies and theoretical conceptualizations of NSSI suggest that there are multiple risk factors and correlates of NSSI; however, it is not yet clear how these factors contribute to NSSI. Among a wide range of associated factors, emotion dysregulation, self-criticism, negative and positive affectivity, thought suppression, pain perception, and self-compassion will be further discussed within the scope of the present dissertation study.

1.6.3. Emotion Dysregulation

Emotion regulation processes have been a unifying mechanism for many psychological disorders (Gross & Munoz, 1995) and a wide array of clinical conditions has been related to emotion dysregulation. Being a multidimensional and complex phenomenon, emotion regulation briefly involves being aware, understanding and accepting one's emotions, being able to act in accordance with one's desired goals, and controlling impulsive behaviors in a negative emotional state, and flexibility in modulation of emotional responses in accordance with the desired goals and requirements of the situation (Gratz & Roemer, 2004). Presence of difficulties or absence of these abilities indicate emotion dysregulation (Gratz & Roemer, 2004). The difficulty with effective regulation of emotions and tolerating distress may partly explain why people engage in NSSI to regulate their negative affective states. In fact, emotion dysregulation is considered as one of the primary factors that initiate and maintain NSSI (Andover & Morris, 2014; Gratz, 2003, 2007; Klonsky, 2007; Linehan, 1993). A considerable amount of evidence suggests that individuals with a history of NSSI have deficits in emotional skills and they display difficulties with the experience, awareness, and expression of emotions (Klonsky & Muehlenkamp, 2007). Studies reported that self-injurers also have deficits in tolerating distress (Anestis, Pennings, Lavender, Tull, & Gratz, 2013).

The relationship between NSSI and emotion dysregulation appears to be consistent across studies. For example, in a study with 249 female university students, Gratz and Roemer (2008) found that emotion dysregulation distinguished women who initiated self-injurious behaviors from those who did not, and among the NSSI group, emotion dysregulation was positively associated with the frequency of NSSI. In their study, two aspects of emotion dysregulation were particularly relevant: a limited access to emotion regulation strategies and lack of emotional clarity. Likewise, in a sample of Turkish substance dependents, Karagöz and Dağ (2015) found that difficulties in emotion regulation differentiated participants with a history of NSSI from those who did not. Particularly, these individuals had difficulty in

engaging in goal directed behavior and controlling impulsive behaviors after experiencing negative emotions, and they had limited access to effective emotion regulation strategies (Karagöz & Dağ, 2015). Furthermore, in a laboratory setting, Nock and Mendes (2008) showed that adolescents who initiated self-injurious behaviors showed a decreased ability to tolerate stress (i.e., quit a distressing task sooner) as compared to those without such a history.

Furthermore, emotion dysregulation also appears to mediate and moderate the relationship with a variety of associated factors and NSSI. For example, in a sample of 1153 university students, Yurkowski and colleagues (2015) reported that emotion dysregulation mediated the relationship between feelings of alienation in parent and peer relationships, and NSSI. Furthermore, among adolescents the relationship between personality characteristics and NSSI was moderated by emotion regulation and coping strategies (Hasking et al., 2010). In a laboratory-based study, emotion dysregulation mediated relationship between pain tolerance and NSSI (Franklin, Aaron, Arthur, Shorkey, & Prinstein, 2012). Moreover, emotion dysregulation mediated the relationship between emotional inexpressivity and NSSI in college students (Gratz & Roemer, 2008).

NSSI has also been linked to increased emotional reactivity (e.g., Franklin et al., 2013; Nock & Mendes, 2008); which consists of the experience of high sensitivity to the emotional stimuli in the environment, high intensity and strength of emotions, and longer persistence of emotions; that is it takes longer duration to return to the baseline emotional state (Nock, Wedig, Holmberg, & Hooley, 2008). In a study with adolescents and young adults, Nock and colleagues (2008) reported that participants with a recent history of NSSI scored higher in emotion reactivity than those without such a history. Besides, in this study emotional reactivity mediated the relationship between psychopathology and NSSI. Likewise, in a laboratory based study, adolescents with NSSI exhibited higher levels of physiological reactivity, as measured by changes in skin conductance levels, in response to a laboratory-based stressful card-sorting task (Nock & Mendes, 2008).

However, a number of studies reported that self-injurers and controls differ in emotion dysregulation; but not in emotional reactivity (e.g., Davis et al., 2014; Zelkowitz, Cole, Han, & Tomarken, 2016).

In sum, it appears that the association between NSSI and emotion dysregulation is well-established; and emotion dysregulation may explain the relationship between a variety of variables and NSSI. However, not all individuals who have deficits in emotion regulation engage in NSSI, which necessitates the exploration of NSSI-specific pathways.

1.6.4. Self-Criticism

Self-criticism is a critical feature of self-definition and is often associated with negative appraisals about self, and feelings of worthlessness, failure, and inferiority (Cohen et al., 2015). Self-criticism plays an important role in numerous psychological conditions such as depression and interpersonal problems (Gilbert, Clarke, Hempel, Miles, & Irons, 2004) and is a vulnerability factor for many psychopathologies (as cited in Xavier, Gouiveia, & Cunha, 2016). Self-injurers appear particularly likely to be self-critical and experience intense self-directed anger or dislike (Klonsky & Muehlenkamp, 2007), and even self-disgust (Smith, Steele, Weitzman, Trueba, & Meuret, 2014). Notably, self-punishment is one of the most prevalent functions of NSSI in the empirical literature, and a considerable number of self-injurers relate self-injury to self-punishment, self-directed anger, and self-hatred (Klonsky, 2007).

Research on self-criticism and NSSI suggests that individuals with a history of NSSI have higher levels of self-criticism than those without such a history (e.g., Claes et al., 2012; Hoff & Muehlenkamp, 2009). Of great importance, self-criticism and self-punishment may explain why individuals with NSSI endure pain during self-injury episodes. For example, in a laboratory-based study, self-injurers who engaged in NSSI with a self-punishment motivation tolerated pain significantly longer

following a stressful task, and rated this pain as less aversive than self-injurers without such a motivation, as well as controls (Hamza et al., 2014). Likewise, in a laboratory study, Hooley and colleagues (2010) showed that in a community sample of self-injurers, a highly self-critical cognitive style was the strongest predictor of prolonged tolerance to pain. Furthermore, improvement in self-worth results in a decrease in willingness to endure physical pain among self-injurers (Hooley and St. Germain, 2014). Taken together, high self-criticism may be a cognitive style that in part explains differences in pain sensitivity between self-injurers and non-injurers, and among self-injurers as well.

Regarding the origins of self-criticism, Nock (2010) suggested that self-criticism and self-punishment among individuals with NSSI might result from early experiences of criticism or abuse. Supporting this proposal, in a study with adolescents, self-criticism mediated the relationship between emotional abuse and adolescent NSSI (Glassman, Weierich, Hooley, Deliberto, & Nock, 2007). Furthermore, in another study, self-criticism and depressive symptoms mediated the relationship between emotional NSSI and emotional experiences and peer victimization as well (Xavier et al., 2016). Likewise, in a non-clinical adult sample, self-criticism mediated the relationship between childhood maltreatment and NSSI (Swannell et al., 2012). Similarly, in an adolescent sample, Wedig and Nock (2007) reported that a self-critical cognitive style moderated the relationship between parental criticism and NSSI. More specifically, the link between parental self-criticism and NSSI was stronger for adolescents with a highly critical cognitive style.

In sum, findings from empirical studies suggest that self-criticism may play a causal role in NSSI (Klonsky et al., 2014).

1.6.5. Negative and Positive Affectivity

Trait positive affect and negative affect are concepts that have a dimensional attribute (Weiser, 2012), and represent individual differences in experience of positive and negative emotions, respectively (Stanton & Watson, 2014). Positive affect includes a state of enthusiasm, high activity, energy, pleasurable engagement, and alertness; whereas negative affect reflects subjective distress, unpleasurable engagement, and a variety of negative mood states such as sadness and anger (Watson, Clark, & Tellegen, 1988). Empirical evidence suggests that negative affect plays a role in a substantial number of psychological disorders, with findings on positive affect showing variability (Stanton & Watson, 2014).

Although research has linked negative affect and NSSI, empirical studies on positive affect and NSSI are limited (Cohen et al., 2015; Jenkins and Schmitz, 2012). Existing research generally focused on affective states before and after self-injury episodes. As previously discussed, a substantial amount of evidence suggests that individuals engage in NSSI in order to escape from negative affective states (Klonsky, 2007). Moreover, self-injurers report significant increases of negative affect and decreases in positive affect prior to the NSSI episodes, and an increase in positive affect following the act of NSSI (Muehlenkamp et al., 2009). Likewise, Jenkins and Schmitz (2012) showed that positive affect right after NSSI acts predicted a greater number of lifetime NSSI episodes; supporting that self-injury has a positive reinforcement function. Based on these findings, Cohen and colleagues (2015) suggested that initial high levels of positive affect may be a protective factor for NSSI.

Regarding trait negative and positive affect, especially trait negative affect appears to be common among individuals with NSSI. More specifically, research shows that self-injurers seem to experience more frequent and intense negative emotions in their lives as compared to non-injurers (Klonsky & Muehlenkamp, 2007). For example, in a sample of non-clinical adolescents, participants with NSSI reported

higher negative affectivity than the control group (Baetens et al., 2011). Likewise, in a large-scale study with non-clinical adults, Klonsky and colleagues (2003) reported that participants with a history of NSSI scored higher on measures of negative affect than those with no such history; however, interestingly, two groups did not differ in their positive affect. Furthermore, Cohen and colleagues (2015) found that positive affect moderated the effect of self-criticism and brooding on NSSI frequency. More specifically, people with a negative cognitive style engaged in self-injury more frequently only if they scored lower on positive affect during the last month. This finding proposed that positive affectivity indeed may be a protective factor for NSSI.

Thus, empirical evidence posits that negative and positive affectivity are related to NSSI; with research on negative affect providing results that are more consistent. It is, however, interesting to note that many individuals who score high on negative affect do not engage in NSSI. Thus, there appears to be a need to identify potential moderators of the relationship between affective traits and NSSI (Nicolai et al., 2016).

1.6.6. Thought Suppression

The term thought suppression represents a cognitive control strategy of consciously avoiding unwanted thoughts (Wenzlaff & Wegner, 2000). Chronic thought suppression has been linked to various psychological disorders and conditions including anxiety, depression, obsessive-compulsive disorder, and posttraumatic stress disorder (Szentagotai, 2009; Purdon, 1999). Empirical evidence on thought suppression suggests that suppressing unwanted thoughts results in a rebound effect (Abramowitz, Tolin, & Street, 2001), and suppressed thoughts may ironically occur in a more frequent and intense way (Wegner, Schneider, Carter, & White, 1987). More specifically, when people are asked to suppress their emotion-related thoughts, it results in a heightened emotional sensitivity related to these thoughts (Wegner & Zanakos, 1994). Interestingly, this heightened emotional response

continues even when people are instructed to return to the initially suppressed thoughts. This rebound effect can also be behavioral. For instance, research showed that suppressing thoughts about food increases food consumption, especially for restraint eaters (Erskine & Georgiou, 2010).

As discussed previously, the most commonly reported function of NSSI is regulating negative emotions and cognitions (Klonsky, 2007). Furthermore, experiential avoidance model of NSSI posits that self-injurers are likely to engage in avoidance coping, and self-injurious behaviors function as an escape strategy from aversive internal experiences (Chapman et al., 2006). For self-injurers, a maladaptive cognitive strategy to escape from unwanted thoughts, such as thoughts that contain self-criticism, may be thought suppression. Thus, in the case of NSSI, trying to suppress unwanted internal states, including NSSI-related thoughts, may increase the frequency and intensity of these negative states, and may play a role in the maintenance of NSSI.

Several empirical studies support the relationship between NSSI and thought suppression. To illustrate, a study with adolescents reported that unwanted inner experiences, thought suppression, and alexithymia distinguished adolescents with NSSI from their counterparts (Howe-Martin et al., 2012). Furthermore, in another study, chronic thought suppression mediated the relationship between negative affectivity and borderline personality disorder symptoms (including NSSI) even after the effect of childhood sexual abuse was statistically controlled (Rosenthal, Cheavens, Lejuez, & Lynch, 2005). Similarly, Najmi, Wegner, and Nock (2007) examined adolescents' self-reported tendency to suppress thoughts, and found that thought suppression is related to the presence and higher frequency of NSSI. Moreover, in this study, thought suppression mediated the relationship between emotional reactivity and the frequency of NSSI. Furthermore, in an ecological assessment study by Nock and colleagues (2010), participants with NSSI were asked to record the alternative behaviors they initiated instead of NSSI when they had a NSSI-related thought, and the most often reported behavior was trying to change their thoughts.

In summary, thought suppression is a maladaptive strategy to escape from aversive thoughts and emotional arousal, which may contribute to NSSI. However, studies exploring the link between thought suppression and NSSI are limited, and there is a need for further research.

1.6.7. Pain Perception

Many individuals with a history of NSSI report no or little pain during the self-injury episodes (Nock & Prinstein, 2005). Accordingly, individual differences in sensitivity to pain may explain why some people, but not others, engage in NSSI. Studies on pain and NSSI usually employ experimental paradigms in which NSSI-proxy tasks such as cold pressor test or electric shocks are used to create a stimulation similar to the experience of pain in NSSI, and participants are asked to rate the subjective pain they feel. In these studies, pain perception has often been conceptualized as the point at which pain inducing stimulus is subjectively reported as painful (i.e., pain threshold), time passed until the participant discontinue to the experience of pain (i.e., pain tolerance; Hooley et al., 2010), and willingness to endure pain after the threshold (i.e., pain endurance; Glenn, Michel, Franklin, Hooley, & Nock, 2014).

Findings from an increasing number of studies indicate that individuals who engage in NSSI have diminished pain perception or pain analgesia (Franklin, Auron, Arthur, Schorkey, & Prinstein, 2012; Glenn et al., 2014; Hooley et al., 2010; St. German & Hooley, 2013; Weinberg & Klonsky, 2012). More specifically, individuals with NSSI appear to have greater pain threshold (e.g., Franklin et al., 2012; Glenn et al., 2014). Moreover, studies also reported that people with a history of NSSI have greater pain endurance (e.g., Glenn et al., 2014, St. Germain & Hooley, 2013) and/or pain tolerance scores (e.g., Franklin et al., 2012; Gratz et al., 2011; McCoy, Fremouw, Mcneil, & Virginia, 2010; Schoenleber, Berenbaum, & Motl, 2014) as compared to those without a history of NSSI. Furthermore, people with NSSI seem to rate pain as less intense than people without NSSI histories (e.g.,

McCoy et al., 2010; Franklin et al., 2012; Weinberg & Klonsky, 2012). To illustrate, in a sample of college students with and without a history of NSSI, Franklin and colleagues (2012) reported that participants with NSSI displayed higher pain threshold and tolerance, and lower pain intensity ratings at the cold pressor task than their counterparts. However, some studies failed to find a group difference in pain threshold (e.g., Mccoy et al., 2010; Schoenleber et al., 2014; St. Germain & Hooley, 2013) as well as in pain intensity ratings (e.g., Bresin & Gordon, 2013).

Findings on physiological reactivity during painful tasks are inconclusive. To our knowledge, only three studies used objective measures to assess physiological responses to pain. First, Bohus and colleagues (2000) explored physiological responses to pain in sample of BPD patients and control participants before, during and after cold pressor test under two conditions: calmness and distress. They did not find any group differences during the pain induction on heart rate and skin conductance fluctuations in either conditions. Second, Franklin and colleagues (2010) found decreased startle responses following a NSSI-proxy which supports the emotion regulation function of NSSI. Unexpectedly, researchers also found the same effect in the control groups, indicating no between-groups differences in startle reactivity. Lastly, Smith (2014) compared physiological measurements (i.e., skin conductance, t-wave amplitude, heart rate, interbeat interval, and CO_2) of people with NSSI to healthy controls and people with blood injection phobia. Evidence for blunted physiological reactivity to pain among self-injurers was mixed. For example, self-injurers did not differ from both groups on skin conductance; but they exhibited greater levels of blood pressure, t-wave amplitude, and interbeat interval (Smith, 2014). Smith (2014) stated that the lack of significant findings regarding skin conductace levels was unexpected, and skin conductance might be a relatively less sensitive measure of sympathetic activity (Smith, 2014).

Studies that explored why individuals with a history of NSSI tolerate pain for a longer time than control groups led to inconsistent results (Hamza, Willoughby, & Armiento, 2014). It is hypothesized that people who initially have low sensitivity to

pain may be more likely to engage NSSI, or the other way round, repetitive NSSI may contribute to decreased pain sensitivity in self-injurers as a result of habituation (Hooley, Ho, Slater, & Lockshin, 2010). Given the limited number of studies, there is a need for laboratory-based and longitudinal studies to have more insight in the role of pain perception in NSSI.

1.6.8. Self-Compassion

Although it exists in the Eastern philosophy and Buddhist tradition for a long time, it is not until the last decade that the concept of self-compassion has begun to receive researchers' attention (Van Viliet & Kalnins, 2011). Self-compassion has been offered as an alternative to the concept of self-esteem, which is criticized being dependent on a *positive* evaluation of one's self and performance. Self-compassion, on the other hand, includes a non-judgmental attitude to one's shortcomings and failures, being warm and kind to oneself, and having an open and accepting attitude to one's suffering, without avoiding or suppressing it (Neff, 2003a, 2003b). From this perspective, all human experience is a part of the common humanity. Accordingly, our mistakes and imperfections are in fact a part of being human (Neff, 2003a, 2003b). A self-compassionate approach requires not criticizing oneself for mistakes and for failure to meet the standards; but it does not indicate a passive state of acceptance or disregarding one's failures either (Neff, 2003b). In fact, being self-compassionate implies being patient, gentle, and caring while encouraging one's self for self-enhancement (Neff, 2003b).

An increasing amount of evidence shows that self-compassion is positively correlated with a variety of other concepts such as subjective well-being, health, psychological resilience, high satisfaction with life, and optimism; while being negatively correlated with anxiety, depression, rumination, negative affect, thought suppression and avoidance (as cited in Barnard & Curry, 2011). Neff (2003a, Neff, Hseih, & Dejitthirat, 2005) suggested that self-compassion acts as an emotion regulation strategy in which negative feelings are not avoided; but are kindly held in

awareness and with a sense of common humanity. To illustrate, Neff and colleagues (2005) showed that students who had a more compassionate attitude toward themselves were less likely to suppress their emotions and were more likely to use acceptance and reinterpretation coping strategies following an academic failure.

With its emphasis on acceptance of internal states and a non-judgmental stance towards failures, self-compassion seems to be the opposite of regulating emotions by avoiding negative emotional experiences and self-criticism; which are consistent correlates of NSSI. To our knowledge, only a handful of studies explored the relationship between self-compassion and NSSI. For example, Jiang and colleagues (2016) reported that self-compassion moderated the relationship between peer victimization and NSSI such that for those who had higher self-compassion scores, peer victimization did not predict NSSI in one-year. Authors suggested that self-compassion might serve as a buffer for NSSI. Furthermore, in another study with adolescents, fear of self-compassion had an indirect effect on NSSI through depressive symptoms and daily hassles concerning peers (Xavier et al., 2016). Similarly, in an adolescent sample, fear of compassion for self significantly contributed to NSSI with negative affect and early experiences of threat and submissiveness (Xavier, Cunha, & Gouveia, 2015). Sutherland and colleagues (2014) qualitatively analyzed online autobiographical stories from self-injury websites and proposed that a self-compassion framework can be helpful to understand people who self-injure as well as people who are in recovery from NSSI.

Thus, given initial findings suggesting that self-compassion may be a possible protective factor for NSSI, there is a certain need for research to enhance our understanding of the role of self-compassion.

1.7. Rationale of the Present Study

Although research interest in NSSI has shown a substantial increase in the past few decades, NSSI still is a poorly understood condition (Hooley & St. Germain, 2014).

Given the many negative health consequences of NSSI such as increased risk for future suicide (e.g., Cooper et al., 2005) and high prevalence among young people (e.g., Muehlenkamp et al., 2012), it is important to understand mechanisms under NSSI. Research has indicated that NSSI is a multi-determined and complex phenomenon, which cannot be explained through any single pathway (Glassman et al., 2007). Since existing studies mostly focus on a limited set of variables and rely on retrospective self-report data, there appears to be a need for comprehensive and multi-method studies that capture the complexity of this condition.

Previous research on functions and correlated factors of NSSI posits that the most frequently established associate of NSSI is emotion dysregulation (Andover & Morris, 2014). Literature consistently suggests that individuals with NSSI has difficulties in emotion regulation and engage in NSSI to regulate aversive internal states (see Klonsky, 2007), several studies also suggested increased emotional reactivity in self-injurers (e.g., Nock & Mendes, 2008). However, vast majority of findings rely on retrospective self-report data, and laboratory-based studies suffer from small sample sizes (Hamza & Willoughby, 2015). Furthermore, since there are many other behaviors that may serve an emotion regulation function, it is not yet clear why individuals select NSSI when a wide range of alternative behaviors exist (Hooley & St. Germain, 2014). Thus, factors other than emotion dysregulation also seem to play an important role in vulnerability to and maintenance of NSSI.

Among numerous associated variables, self-criticism has received empirical support as a potential risk factor that contributes to the presence of NSSI, as well as a mediator in the relationship between family-related variables and NSSI (e.g., Swannell et al., 2012). Self-criticism appears to be related to the self-punishment function of self-injury, and in several studies, it was associated with altered pain perception in self-injurers (e.g., Hamza et al., 2014). Furthermore, self-injurers also appear to experience more negative affect as compared to non-injurers, with findings on positive affect being scarce and inconsistent. Moreover, there is mounting evidence that people with a history of NSSI have pain analgesia which

may explain why some people, but not others, expose themselves to physical pain as in NSSI (Bunderla & Kumperščak; 2015; Groschwitz & Plener, 2012; Kirtley, O'Carroll, & O'Connor, 2016). However, laboratory-based assessments on pain perception are limited and many studies include small samples of self-injurers and/or clinical samples (Hamza et al., 2014). Moreover, psychological correlates of pain perception have been neglected by the current research, and yet to be investigated (Kirtley et al., 2016). In addition, as a potential maintaining factor, thought suppression has been related to NSSI in several studies (e.g., Najmi et al., 2007), although research evidence is still limited. Last but not least, an important gap in the literature is the limited research on protective factors for NSSI. To date, research has heavily relied on risk factors of NSSI, and possible protective factors need further exploration. Based on past research, self-compassion (e.g., Jiang et al., 2016) and positive affect (e.g., Cohen et al., 2015) appear to be potential protective factors that may prevent individuals from engaging in self-injurious behavior, and if supported through future empirical evidence, may be integrated into the treatments for NSSI. Accordingly, these variables were also included in the present study.

As for the empirical literature in Turkey, studies that explore NSSI are rare. We found a small number of studies that investigated prevalence and characteristics of NSSI among college (Öksüz & Malhan, 2005; Toprak et al., 2011) and high school students (Oktan, 2014; Somer et al., 2015; Zoroğlu et al., 2003). Moreover, there are several studies that explored correlates of NSSI among substance dependent patients (Evren & Evren, 2005; Evren, Kural, & Çakmak, 2006; Karagöz & Dağ, 2015), sexually abused adults (Baral, Kora, Yüksel, & Sezgin, 1998) and psychiatric inpatients (e.g., Yargıç, Ersoy, & Oflaz, 2012). However, these studies suffer from methodological limitations regarding the conceptualization and measurement of NSSI. For example, of the 10 studies reviewed, only two (i.e., Oktan, 2014; Somer et al., 2015) employed standardized and reliable measures of NSSI. Moreover, to our knowledge, there are no laboratory-based studies conducted by Turkish researchers, and existing findings depend solely on retrospective self-report data.

Overall, there is a need for studies that address the gaps in the existing literature by employing an integrative, multi-method approach, and standardized and objective measures. Furthermore, because many previous studies employed clinical samples, there is a need for studies with non-clinical samples to be able to generalize findings to community. Accordingly, the purpose of the present dissertation study was to investigate prevalence, characteristics, functions, and associated factors of NSSI in a sample of Turkish young adults, and to identify variables that distinguish individuals with a history of NSSI from those without such history using both self-report measures and a laboratory-based design.

Addressing these purposes, this dissertation consisted of two studies. In Study 1, a large sample of college students were screened for the presence of NSSI, and were asked to fill in self-report measurements to assess emotion dysregulation, self-criticism, thought suppression, self-compassion, positive and negative affectivity. Next, a group of participants from the Study 1 sample who were eligible for Study 2 (individuals with a history of NSSI and controls) were invited to the laboratory for an experimental session. In Study 2, cold pressor test as a proxy to NSSI was employed to assess baseline pain variables (i.e., pain threshold, tolerance, and endurance). Next, a distressing card-sorting task was used to induce distress to the participants, as well as to assess their distress tolerance and physiological reactivity to distressing stimuli. After this manipulation, cold pressor test was repeated to explore potential within and between group differences in pain measures as a function of distress. Furthermore, skin conductance responses were recorded to examine physiological reactivity of participants to pain and distress.

CHAPTER II

STUDY I

Previous studies showed that non-suicidal self-injury (NSSI) is a frequent and highly dysfunctional behavior that threatens especially young people in our society. NSSI has been associated with a variety of psychological variables in previous studies; yet we still do not clearly understand why people engage in self-injurious behavior. Number of studies that has attempted to understand NSSI has increased during the last few decades; however, studies with Turkish samples are very scarce and existing studies suffer from methodological limitations. Accordingly, the general aim of the present study was to assess the frequency, characteristics, and associated factors of NSSI among a sample of Turkish university students.

In the light of the existing research evidence, the objectives of the Study 1 were as follows:

(1) To examine the frequency and characteristics of NSSI in a sample of Turkish young adults, including potential gender differences,

(2) To examine differences between individuals with a history of NSSI and those who do not have such history on a variety of psychological variables (i.e., emotion dysregulation, self-criticism, thought suppression, self-compassion, positive and negative affect),

(3) To identify relative contributions of emotion dysregulation, self-criticism, thought suppression, self-compassion, positive and negative affect to the presence of NSSI.

In line with these goals, specific research questions and hypotheses of the Study 1 were as follows:

(1) What are the frequency and characteristics of NSSI in the present sample of Turkish university students?

Hypothesis 1.1. Studies exploring the prevalence of NSSI among Turkish college samples are very scarce, and two previous studies reported rates of 8% (Öksüz & Malhan, 2005) and 15.4% (Toprak et al, 2011). Therefore, the research question on the frequency of NSSI was exploratory.

Hypothesis 1.2. As for methods of self-injury, based on previous studies (e.g., Jenkins & Schmitz, 2012; Oktan, 2014), we hypothesized that cutting and preventing wounds from healing would be commonly endorsed methods of NSSI.

Hypothesis 1.3. Regarding gender differences in prevalence of NSSI, previous findings have revealed inconsistent results; some studies with Turkish samples reporting higher rates among males (e.g., Oktan, 2014; Toprak et al., 2011), whereas some reporting similar rates across genders (e.g., Somer et al., 2015; Zoroğlu et al., 2003). Research is limited regarding gender differences in methods of NSSI, and two previous studies with Turkish samples reported that males engaged in cutting and burning more frequently than females (Oktan, 2014), whereas females engaging in hair pulling more than males (Zoroğlu et. al., 2003). Accordingly, research question on gender was exploratory.

(2) What factors distinguish individuals with and without a history of NSSI?

Hypothesis 2.1. Based on the previous findings (e.g., Claes et al., 2012; Howe-Martin et al., 2012; Klonsky & Muehlenkamp, 2007), we expected self-injurers to have higher scores on self-criticism, negative affectivity, and thought suppression measures as compared to non-injurers. Furthermore, based on past research (e.g., Jenkins and Schmitz, 2012; Xavier et al., 2016), we expected self-injurers to score lower on positive affect and self-compassion measures as compared to non-injurers.

(3) Which factors are the stronger predictors of the presence of NSSI?

Hypothesis 3.1. Because of the well-established literature on the link between emotion dysregulation and NSSI (e.g., Ross & Heath, 2002), we hypothesized that emotion dysregulation would have the strongest predictive power on the presence and absence of NSSI after statistically controlling for age, gender, and positive and negative affect. However, we also expected self-criticism to be a significant predictor of NSSI based on mounting evidence supporting the relationship between NSSI and self-criticism (e.g., Claes et al., 2012; Hoff & Muehlenkamp, 2009).

2.1. Method

2.1.1. Participants

Participants of the present study were selected from a larger screening sample of undergraduate students (N = 649) based on their responses to the Inventory of Statements about Self-injury (ISAS). This initial pool of participants was screened in order to be assigned into one of the two groups of the current study namely; self-injury group and the control group. Because of the high report rate of self-injury behaviors on the ISAS in this initial sample, an inclusion criterion for the self-injury group was formed for the present study, based on the frequency of engaging in different kinds of self-injurious behavior. Those NSSI behaviors that were less commonly employed by the youngsters were classified as more serious self-injurious behaviors; this classification was conducted in order to approximate clinically disordered population and increase homogeneity, thus internal validity.

2.1.1.1. The Screening Sample

In the screening sample (N = 649), among the 12 NSSI behaviors listed on the ISAS, the frequency of engaging in at least one behavior of NSSI was 62.87% (n = 408). However, because of the high frequency of some behaviors, we used a similar approach as Lloyd-Richardson and colleagues (2007), and chose to eliminate participants who *only* engaged in more common (and presumably less serious) self-

injurious behaviors, which were endorsed by more than 25% of the participants. We assumed that these items might have been misunderstood by participants and might not reflect actual NSSI. Less serious NSSI behaviors were interfering with wound healing (*n* = 249, 38.2%), banging or hitting self (*n* = 240, 37%), pinching (*n* = 199, 30.7%), and biting (*n* = 188, 28.97%). Accordingly, participants who engaged NSSI behaviors that were reported by less than 25% of the sample (i.e., cutting, burning, carving, pulling hair, severe scratching, rubbing skin against rough surface, sticking self with needles, and swallowing dangerous substances) were considered as self-injurers. Participants who engaged *only* in relatively more frequent self-injury behaviors were excluded from the final self-injury group. Frequency of NSSI behaviors in the screening sample can be seen in Table 2.1.

Table 2.1. *The frequency of self-injury behaviors listed on the Inventory of Statements about Self-Injury among the initial participant pool (N = 649).*

NSSI behaviors	**N**	**%**
Serious NSSI	311	47.92
Interfering with wound healing	248	38.2
Banging or hitting self	240	37
Pinching	199	30.7
Biting	188	28.97
Pulling hair	130	20
Carving	125	19.3
Severe scratching	123	19
Cutting	88	13.6
Sticking self with needles	84	12.9
Rubbing skin against rough surface	75	11.6
Swallowing dangerous substances	52	8
Burning	36	5.5

When only NSSI behaviors that were considered as relatively more serious were taken into account, the rate of NSSI in the screening sample was found as 47.92% (*n* = 311). Among these 311 participants with a history of NSSI, 67.5% (*n* = 210) were female and 32.2% (*n* = 100) were male. One participant did not report gender. A chi-square test of independence was conducted to examine the relationship between group type and gender, and was found significant, $\chi^2(1, N = 646) = 5.03$, $p < .05$; indicating more frequent engagement in NSSI among females than males.

After the less serious NSSI items, the most commonly endorsed method of self-injury was pulling hair (*n* = 130, 20%), followed by carving (*n* = 125, 19.3%), severe scratching (*n* = 123, 19%), and cutting (*n* = 88, 13.6%) The least commonly endorsed methods of NSSI were burning (*n* = 36, 5.5%), swallowing dangerous substances (*n* = 52, 8%), rubbing skin against rough surface (*n* = 75, 11.6%), and sticking self with needles (*n* = 84, 12.9%). As for the lifetime frequency of NSSI acts, 34 participants (5.2%) reported engaging in NSSI only once, 102 (15.7%) reported 2 to 5 times, 89 (13.7%) reported 6 to 20 times, and 86 (13.3%) reported engaging in NSSI more than 20 times lifetime.

Among individuals with a history of NSSI (*n* = 311), 41.8% (*n* = 130) reported that they experienced physical pain during self-harm, while 43.7% (*n* = 136) reported that they sometimes experienced pain, and 12.5% (*n* = 39) did not report any experience of pain during self-harm episodes. Six participants (1.9%) did not answer this question.

2.1.1.2. The Study Sample

We further narrowed down the NSSI group by applying a conservative inclusion criterion in order to more closely approximate to a clinical population. Accordingly, our final NSSI group consisted of self-injurers who endorsed in one of the relatively more serious NSSI behaviors either during the past year or endorsed in NSSI behaviors at least 10 times in their lifetime.

The control group was composed of participants who have never engaged in any of the NSSI behaviors in their lifetime. Furthermore, participants who did not report any history of NSSI; but still answered the questions on NSSI were excluded.

Based on this inclusion criterion, the final sample consisted of 406 university students (self-injurers, *n* = 211; controls, *n* = 195) recruited from Middle East Technical University, in return for an extra course credit. The age of the sample ranged from 18 to 45 with a mean age of 21.54 (*SD* = 2.57). There were 265 females (65.3%) and 139 males (34.2%). Two participants did not report their gender. As for marital status, the majority of the sample was single *(n* = 402, 99%) and only 4 participants (1%) reported being married. In terms of socioeconomic status (SES), the majority of participants (57.9%, *n* = 235) perceived themselves as a member of the middle SES, while 92 participants (22.7%) as a member of middle-high SES, 71 participants (17.5%) as a member of middle-low SES, 5 participants as low SES (1.2%) and the remaining 3 (0.7%) perceived themselves as a member of the high SES. You can see the distribution of demographic variables in Table 2.2.

Table 2.2. *Distribution of Demographic Variables in the Study Sample (N = 406)*

Variables	**NSSI (%)**	**Control (%)**	**Total (%)**
Gender			
Male	73 (34.6)	66 (34.2)	139 (34.2)
Female	138 (65.4)	127 (65.8)	265 (65.3)
Socioeconomic Status			
High	1 (0.5)	2 (1)	3 (0.7)
Middle-high	44 (20.9)	48 (24.6)	92 (22.7)
Middle	121 (57.3)	114 (58.5)	235 (57.9)
Middle-low	41 (19.4)	30 (15.4)	71 (17.5)
Low	4 (1.9)	1 (0.5)	5 (1.2)
Marital Status			
Single	210 (99.5)	192 (98.5)	402 (99)
Married	1 (0.5)	3 (1.5)	4 (1)
Treatment Experience			
Yes	21 (10)	14 (7.2)	35 (8.6)
No	190 (90)	181 (92.8)	371 (91.4)

Regarding the distribution of demographic variables within NSSI and control groups (see Table 2.2.), there were 138 (65.4%) females and 73 (34.6%) males in the NSSI group while there were 127 (65.8%) females and 66 (34.2%) males in the control group. In terms of perceived SES, 121 (57.3%) participants in the NSSI and 114 (58.5%) participants in the control group identified themselves as a member of middle SES; while 44 (20.9) participants in NSSI and 48 (24.6) in the control group identified themselves as middle-high SES. Furthermore, 41 (19.4) and 30 (15.4%) participants reported themselves being a member of middle-low SES, and 4 (1.9%) and 1 (0.5 %) participants reported themselves being a member of low SES, in the NSSI and control groups respectively. Lastly, one (0.5 %) participant in the NSSI and 2 (1%) participants in the control group identified as a member of high SES. As for the marital status, 99.5% (n = 210) of the NSSI and 98.5% (n = 192) of the control group participants were single.

Regarding their departments, the majority of the sample consisted of students from psychology (n = 113, 27.8%), others were from philosophy (n = 61, 15%), business administration (n = 54, 13.3%), and civil engineering (n = 30, 7.4%) departments of Middle East Technical University. Frequency distribution of participants in terms of their departments can be seen in Table 2.3.

In terms of treatment history (see Table 2.2.), 35 participants (8.6%) stated that they were receiving some kind of psychological treatment at the time of the study. Nineteen (4.7%) of all participants were under psychotherapy at the time of the study, while 27 (6.7%) were under medical treatment for their mental health problem(s). In terms of psychological diagnosis, anxiety disorders (n = 14), mood disorders (n = 10), eating disorders (n = 1), sleep disorders (n = 1), attention and hyperactivity disorder (n = 1), and borderline personality disorder (n = 1) were reported by the participants. As for NSSI and control groups, 10% (n = 21) of the NSSI group and 7.2% (n = 14) of the control group reported receiving treatment for their psychological problems at the time of the study.

Table 2.3. *Distribution of departments in the study sample (N = 406)*

Department	***N***	**%**
Psychology	113	27.8
Philosophy	61	15
Business Administration	54	13.3
Civil Engineering	30	7.4
Early Childhood Education	19	4.7
Electrical and Electronics Engineering	17	4.2
Sociology	15	3.2
Computer Engineering	13	3.2
Molecular Biology and Genetics	7	1.7
Mechanical Engineering	8	2
Industrial Engineering	6	1.5
Architecture	6	1.5
Political Science	6	1.5
Chemical Engineering	5	1.2
Aerospace Engineering	4	1
Computer Education and Instructional Technology	4	1
Food Engineering	4	1
Statistics	4	1
Mathematics	4	1
History	3	0.7
Physics	3	0.7
Economy	3	0.7
Biology	3	0.7
Environmental Engineering	2	0.5
Metallurgical And Materials Engineering	2	0.5
Chemistry	2	0.5
International Relations	2	0.5
Mining Engineering	2	0.5
Petroleum and Natural Gas Engineering	1	0.2
Chemistry Education	1	0.2
English Education	1	0.2
Educational Administration and Planning	1	0.2

2.1.2. Materials

In the current study, participants filled out a demographic information form before the psychometric measures of the study. The demographic form included questions on demographic characteristics (e.g., age, perceived SES, marital status) and treatment history. Following this form, psychometric measures including Inventory of Statements about Self-Injury (Klonsky & Glenn, 2009; Klonsky & Olino, 2008), Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004), The Levels of Self-Criticism Scale (Thompson & Zuroff, 2004), White Bear Suppression Inventory (Wegner & Zanakos, 1994), The Self-Compassion Scale (Neff, 2003a), The Positive and Negative Affect Schedule (Watson et al., 1988) and a single item measuring participants' satisfaction with their adopted coping skills were administered.

2.1.2.1. Inventory of Statements about Self-injury (Klonsky & Glenn, 2009; Klonsky & Olino, 2008, ISAS)

The ISAS is a self-report measure of the frequency and the functions of NSSI. The first section of the scale measures the lifetime frequency of 12 NSSI behaviors (e.g., cutting, biting, carving, and severe scratching) performed on purpose without suicidal intent. The second section consists of 39 items which assesses 13 functions of NSSI. Each function falls into one of the two superordinate categories namely; intrapersonal functions (i.e., emotion regulation, self-punishment, marking distress, anti-suicide, anti-dissociation) and interpersonal functions (i.e., interpersonal boundaries, interpersonal influence, autonomy, revenge, peer bonding, self-care, sensation seeking, toughness). Each function is measured on a 3-point Likert-type scale (0 = not at all relevant, 3 = very relevant) and superordinate subscale scores are obtained by summing up the scores for the corresponding subscales and dividing the total score by the number of subscales under that category to reach a mean score.

The ISAS has been found to be a reliable and valid measure of NSSI frequency and functions (Klonsky & Glenn, 2009; Klonsky & Olino, 2008; Kortge, Meade, &

Tennant, 2013). More specifically, higher scores on intrapersonal or interpersonal functions subscales were correlated with higher scores on clinical measures of depression, anxiety, borderline personality disorder, suicide ideation, and attempted suicide (Klonsky & Glenn, 2009). Furthermore, Glenn, and Klonsky (2011) found that behavioral and functional scales of the ISAS had good test-retest reliability over one year.

The Turkish adaptation of the ISAS has been conducted by Bildik, Somer, Başay, Başay, and Özbaran (2013). The two-dimension factor structure in the second section of the scale was also maintained in the Turkish sample. Internal consistency, test-retest reliability, and construct validity results showed that the Turkish version's psychometric properties were comparable to properties of the original scale (Bildik et al., 2013). ISAS behavioral scale correlated positively with clinical measures of anxiety, depression, somatization, negative self, anger/aggression, hopelessness, hostility, suicidal ideation, and negative self-evaluation (Bildik et al., 2013). Furthermore, test-retest reliability over four weeks was .66 for the behavioral scale and it was .64 for the functional scale (Bildik et al., 2013).

In the present study, the first section of the ISAS was used to assess the frequency of NSSI behaviors in a large student sample for screening purposes. Moreover, an additional item from the first section ("Do you experience physical pain during self-harm?") was used to assess the presence of physical pain during NSSI episodes. There was a high variability in the frequency of NSSI behaviors that were reported by the participants, with the frequencies ranging from 1 to 11000000. Accordingly, following Cohen and colleagues (2015) and Whitlock and colleagues (2013) suggestions, we classified the frequency of NSSI into five categories (i.e., 0, 1, 2–5, 6–20, and more than 20 NSSI episodes).

2.1.2.2. Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004; DERS)

DERS is a 36-item multidimensional self-report scale that was developed to assess difficulties in emotion regulation. The scale consists of 6 subscales wherein different emotion regulation difficulties may occur, namely *lack of awareness of emotional responses* (awareness), *lack of clarity of emotional responses* (clarity), *non-acceptance of emotional responses* (non-acceptance), *limited access to effective strategies* (strategies), *difficulties in controlling impulses when experiencing negative affect* (impulse), and *difficulties in engaging goal directed behavior when experiencing negative affect* (goals). Each item is rated on a 5-point Likert-type scale (1 = almost never, 5 = almost always) and higher scores represent greater difficulty in emotion regulation (Gratz & Roemer, 2004).

DERS has been shown to have adequate internal consistency, good test-retest reliability over 4 to 8 weeks, and the DERS subscales correlated differentially with clinically relevant constructs (e.g., emotional expressivity), and behavior outcomes such as self-harm and intimate partner abuse (Gratz & Roemer, 2004). Furthermore, in numerous studies, DERS total scores have been associated with a variety of psychological disorders and related constructs such as borderline personality disorder (e.g., Bornovalova et al.,2008) and depression (e.g., Fowler et al., 2014); providing support for the validity of the DERS.

DERS has been adapted into Turkish by Rugancı and Gençöz (2010). The original factor structure was preserved in the Turkish version. Both the total scale and individual subscales showed a high internal consistency, and a good test-retest reliability over 20 to 33 days for the total scale (r = .83) as well as for the individual subscales (r = .60-.85; Rugancı & Gençöz, 2010). Furthermore, there were strong positive correlations between the DERS total and subscale scores and the total and subscale scores on Brief Symptom Inventory (Derogatis, 1993); providing evidence for construct validity (Rugancı & Gençöz, 2010). Moreover, as expected, total scores on the Turkish version of the DERS correlated with a variety of

psychopathologies in later studies such as pathological gambling (Elmas, Cesur, & Oral, 2016) and social anxiety (Eldoğan & Barışkın, 2014).

In the present study, total score and subscale scores of DERS were used to measure emotion dysregulation and its dimensions in participants.

2.1.2.3. The Levels of Self-Criticism Scale (Thompson & Zuroff, 2004; LOSC)

LOSC (Thompson & Zuroff, 2004) is a 22-item self-report measure of self-criticism. It consists of two subscales measuring two dysfunctional forms of negative self-evaluation: Comparative self-criticism (12 items) and internalized self-criticism (10 items). Comparative self-criticism is defined as a negative evaluation of self in comparison to others while internalized self-criticism involves a negative evaluation of self in comparison to personal standards. Participants are asked to indicate their degree of agreement with each statement on a 5-point Likert-type scale ranging from 1 ("this is a very bad description of me") to 5 ("this is a very good description of me").

The LOSC has shown good psychometric characteristics. More specifically, the internal reliability coefficient of the scale was .81 and .87 for comparative and internalized self-criticism subscales respectively (Thompson & Zuroff, 2004). There is also good evidence for the convergent and discriminant validity of LOSC provided by moderate level correlations with self-esteem, psychological distress, perfectionism, neuroticism, and self-criticism scores of the Depressive Experiences Questionnaire (Blatt, D'Afflitti, & Quinlan, 1976; Thompson & Zuroff, 2004). Furthermore, internalized self-criticism subscale of the LOSC positively correlated with inadequate-self and hated-self subscales, whereas comparative self-criticism subscale positively correlated with self-correction subscale of the Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (Gilbert et al., 2004).

The Turkish adaptation study of the scale was conducted by Öngen (2006). Alpha reliability coefficients for the Turkish version were .67 and .77 for the comparative and internalized self-criticism subscales respectively (Öngen, 2006). In the same study, significant positive correlations were found between the two subscales of the LOSC, and depression and submissive acts scores (Öngen, 2006). As for the criterion validity, comparative self-criticism negatively correlated with self-liking and self-competence subscales of the Self-Liking/Self-Competence Scale (Doğan, 2011), whereas internalized self-criticism correlated negatively with the self-liking subscale (Doğan, 2011).

In the present study total scale score was used as a measure of participants' level of self-criticism.

2.1.2.4. White Bear Suppression Inventory (Wegner & Zanakos, 1994; WBSI)

The WBSI (Wegner & Zanakos, 1994) is a 15-item self-report measure that was developed to evaluate people's tendency toward suppressing unwanted thoughts. The items are rated on a 5-point Likert-type scale, ranging from 1 to 5 (1 = *strongly disagree* to 5 = *strongly agree*) where higher scores indicate a stronger tendency toward thought suppression. A total scale score is yielded by adding up scores from individual items.

In previous studies, WBSI showed high internal consistency values across several large samples, with Cronbach's alphas ranging from .87 to .89 (Schmidt et al., 2009). WBSI was also found to correlate with measures of obsessive thinking, depressive and anxious affect; indicating construct and predictive validity (Wegner & Zanakos, 1994). For example, Muris, Harald, Merckelbach, and Horselenberg (1996) reported that total scores on WBSI correlated positively with trait anxiety, depressive symptoms, neuroticism, obsession-compulsion, intrusive thinking, and the use of thought control strategies.

WBSI was adapted into Turkish by Altın and Gençöz (2009). Their study revealed a Cronbach's alpha coefficient of .90 for internal reliability, and test-retest correlation (after a 4-week interval) was .80. As for construct validity, total scores from the Turkish version of WBSI correlated positively with measures of clinical conditions such as depression, anxiety, bulimic symptoms, drinking to cope, and NSSI; as well as related dysfunctional constructs such as rumination and excessive reassurance seeking (Tuna & Bozo, 2014).

In the present study, WBSI was used to measure participants' levels of thought suppression.

2.1.2.5. The Self-Compassion Scale (Neff, 2003a; SCS)

The SCS (Neff, 2003a) is a 26-item self-report scale that measures level of self-compassion. The SCS consists of 6 subscales (self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identified) and items are rated on a 5-point Likert-type scale, ranging from 1 (almost never) to 5 (almost always). A higher score in the total scale indicates a higher level of self-compassion.

The internal reliability coefficient of the scale was .92 among college students and construct validity was provided by significant negative correlations with self-criticism, anxiety and depression scores (Neff, 2003a). Furthermore, research showed that SCS correlated positively with positive outcomes such as positive affect, achievement, well-being, and life-satisfaction (Barnard & Curry, 2011; Neff, Kirkpatrick, & Rude, 2007; Neff & McGehee, 2009).

The SCS has been adapted into Turkish by Deniz, Kesici, and Sümer (2008). Two items were eliminated because of their low total-item correlations. The Turkish form demonstrated a single factor (Deniz et al., 2008). Cronbach's alpha coefficient was .89 and test-retest reliability was .83 at a 3-weeks interval. The scale correlated positively with self-esteem, life satisfaction and positive affect whereas correlated

negatively with negative affect; demonstrating discriminant validity (Deniz et al., 2008). Furthermore, in later studies, scores on the Turkish form of the SCS were found to be negatively associated with internet addiction (İskender & Akın, 2011) and loneliness (Akın, 2010).

In the present study, the SCS was administered to assess participants' levels of self-compassion.

2.1.2.6. The Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988; PANAS)

The PANAS is a self-report measure of emotional experience which consists of 10 positive and 10 negative adjectives that correspond to positive affect (PA) and negative affect (NA). Participants rate how much they have experienced each of these 20 items over the past 30 days on a 5-point Likert-type scale (1 = very slightly or not at all; 2 = extremely). Scores for PA and NA items are summed up separately to reach scores of the corresponding subscale.

PANAS is a widely used instrument that has been shown to be highly internally consistent and there is also evidence for its convergent and discriminant validity (Watson et al., 1988). More specifically, Watson and colleagues (1988) administered PANAS by using a variety of time frames (e.g., right now, past few weeks) and found the internal reliability of the PA subscale ranging from .86 to .90, and the NA subscale from .84 to .87. Again by using these time frames, test-retest reliability coefficients at an 8-week interval ranged from .47 to .68 for the PA scale, and .39 to .71 for the NA scale. As for construct validity, PA and NA subscales have been associated to a variety of constructs including but not limited to depression (e.g., Crawford & Henry, 2004), physical disorders (e.g., Weiser, 2012) and life satisfaction (e.g., Brajša-Žganec, Ivanović, & Lipovčan, 2011). Furthermore, the PANAS was also found to be effective in discriminating depression and anxiety in clinical population (Ortuño-Sierra, Santarén-Rosell, Pérez de Albéniz, & Fonseca-Pedrero, 2015).

The scale has been adapted into Turkish by Gençöz (2000) and the Turkish version's internal consistencies were .83 and .86, respectively, for the PA and NA subscales. Test–retest reliability coefficients (after a 3-week interval) were .40 and .54 for the PA and NA subscales, respectively (Gençöz, 2000). Subscales of the Turkish version correlated with the present levels of depression and anxiety (Gençöz, 2000), as well as depressive and anxiety symptoms at a 3-week follow-up (Gençöz, 2002).

In the present study, the PANAS was used to measure participants' experiences of positive and negative affect. Following Schoenleber and colleagues (2014), the scale was administered with the "in general" time frame to measure proneness to emotions.

2.1.2.7. Satisfaction with Adopted Coping Strategies

A single item was developed for the present study to measure participants' satisfaction with their coping skills when they experience problems in their lives. This item was rated on a 5-point Likert-type scale (1 = completely disagree; 5 = completely agree) with higher scores indicating higher satisfaction with adopted coping strategies.

2.1.3. Procedure

Prior to the study, necessary permissions were taken from the METU Human Subjects Ethics Committee. Then, students who were enrolled in psychology courses offered at the METU Department of Psychology during the 2015-2016 academic year were invited to the study in return for an extra course credit. All participants participated in the study voluntarily. Data was collected through an online questionnaire. Before filling in the study questionnaires, participants signed an informed consent form which provided brief information about the study. Completion of the study items took approximately 20 to 25 minutes.

2.1.4. Data Analysis

First, data was checked for accuracy and incomplete surveys were excluded from the data. Then, univarite analyses of normality were conducted to check for any deviations from normal distribution. Descriptive information of the study measures and Cronbach alpha coefficients for the study scales were calculated.

Before the main analyses, self-injurers and non-injurers were compared on demographic variables by using independent sample t-tests and chi-square tests of independence. Next, the rate of NSSI and each NSSI behavior were reported. Furthermore, in order to assess the characteristics of NSSI among self-injurers, participants' responses to the ISAS were evaluated. Next, correlation coefficients among study variables were computed.

As for the main analyses, independent samples t-tests were conducted to compare NSSI and control groups on emotion dysregulation, thought suppression, self-compassion, self-criticism, and satisfaction with adopted coping strategies. Next, two one-way between subjects multivariate analyses of variance (MANOVA) were conducted to assess the effects of group type (i.e., NSSI vs. control) on PANAS and DERS subscales. Lastly, a binary logistic regression analysis was run to predict membership into NSSI and control groups by using study variables as predictors.

Data was analyzed through the Statistical Package of Social Sciences (SPSS), version 22.0 for Windows.

2.2. Results of the Study 1

Before the analyses, univariate analyses of normality were conducted using a skewness/kurtosis index of + or – 2 and none of the study variables required a transformation.

2.2.1. Descriptive Information of the Measures of the Study

Measures used in the study were examined on means, standard deviations, minimum and maximum score ranges for the total scale and the subscales (see Table 2.4). These measures were the Difficulties in Emotion Regulation Scale (DERS) with subscales of clarity, non-acceptance, goals, impulse, awareness and strategies; Self-Compassion Inventory (SCI), the Levels of Self-Criticism Scale (LOSC), White Bear Suppression Inventory (WBSI), the Positive and Negative Affect Schedule (PANAS) with subscales of positive and negative affect, and a single item measuring participants' satisfaction with adopted coping strategies.

2.2.2. Reliability Analyses

Internal reliability coefficients were calculated for the study measures and their subscales (see Table 2.4). Cronbach's alphas for the DERS total scale was found to be .94; and it was .83 for the clarity subscale, .90 for the non-acceptance subscale, .90 for the goals subscale, .91 for the impulse subscale, .71 for awareness and .90 for the strategies subscale. Cronbach's alphas for SCI, LOSC and WBSI were .94, .80 and .90, respectively. Lastly, internal reliability coefficients for the PANAS subscales were .86 for negative affect and .80 for the positive affect subscale.

2.2.3. Demographic Comparisons

Before the main analyses, participants with a history of NSSI were compared to control participants on age, gender, marital status, and perceived socioeconomic status (SES) to explore any group differences on demographic variables.

Table 2.4. *Descriptive Information of the Study Measures across Groups (N = 406)*

Measures	Mean	SD	Range (min-max)	# of items	Cronbach's alpha
Difficulties in Emotion Regulation Scale	89.71	22.11	41-158	36	.94
Clarity	11.57	3.48	5-25	5	.83
Non-acceptance	13.14	5.53	6-30	6	.90
Goals	16.84	4.57	5-25	5	.90
Impulse	13.95	5.62	6-30	6	.91
Awareness	14.58	3.55	6-26	6	.71
Strategies	19.63	7.20	8-40	8	.90
Self-Compassion Inventory	72.12	17.46	29-118	24	.94
The Levels of Self-Criticism Scale	61.73	11.28	35-98	22	.80
White Bear Suppression Inventory	52.28	11.18	15-75	15	.90
PANAS					
Negative Affect	23.31	7.36	10-48	10	.86
Positive Affect	32.71	6.06	17-47	10	.80
Satisfaction with coping	3.49	0.99	1-5	1	-

Note: PANAS: Positive and Negative Affect Schedule

First, an independent samples t-test was conducted to compare self-injurer and control groups on age. Self-injurers (M = 21.44, SD = 2.57) did not differ from non-injurers (M = 21.65, SD = 2.57) on age, $t(404) = -.84$, $p > .05$. Next, a chi-square test of independence was conducted to compare the male and female distribution in self-injurer and control groups.

Interaction was not significant, $\chi^2(1, N = 406) = 0.93$, $p > .05$. In order to examine the relationship between group type and marital status, a chi-square test of independence was conducted and was not found to be significant, $\chi^2(1, N = 406) = 1.18$, $p > .05$. Lastly, a chi-square test of independence was conducted to examine the relationship between group type and perceived SES, and it was not significant either, $\chi^2(4, N = 406) = 3.60$, $p > .05$.

2.2.4. Frequency and Characteristics of NSSI

As the next step, participants' responses to the ISAS were analyzed to determine characteristics of NSSI among self-injurers. The lifetime frequency of NSSI behaviors that were reported by participants in the NSSI group are listed in Table 2.5. Following the more frequent NSSI behaviors (i.e., interfering with wound healing, banging or hitting self, pinching, and biting), the most commonly endorsed NSSI behavior as reported by participants was pulling hair (n = 102, 25.12%) and the least commonly endorsed behavior was burning (n = 33, 8.13%). As ordered in frequency, other reported NSSI behaviors were severe scratching (n = 97, 23.89%), carving (n = 90, 22.17%), rubbing skin against rough surface (n = 66, 16.26%), sticking self with needles (n = 68, 16.75%), cutting (n = 62, 15.27%), and lastly swallowing dangerous substances (n = 34, 8.37%).

Table 2.5. *The frequency of self-injurious behaviors reported at least once in the study sample (N = 406).*

NSSI behaviors	N	%
Pulling hair	102	25.12
Severe scratching	97	23.89
Carving	90	22.17
Rubbing skin against rough surface	66	16.26
Sticking self with needles	68	16.75
Cutting	62	15.27
Swallowing dangerous substances	34	8.37
Burning	33	8.13
Interfering with wound healing*	154	37.93
Banging or hitting self*	141	34.73
Pinching*	118	29.06
Biting*	119	29.31

* Less serious self-injury behaviors

Regarding the reported frequency of NSSI episodes, 4.7% (n = 10) of those with NSSI reported one episode of NSSI, 19% (n = 40) reported 2 to 5 episodes, 35.5% (n = 75) reported 10 to 20 episodes, and the remaining 40.8% (n = 86) reported more than 20 lifetime NSSI episodes. Among self-injurers, a series of chi-square analyses were conducted to explore the relationship between gender, and frequency of lifetime NSSI episodes (i.e., 0, 1, 2-5, 6-20, > 20 acts) as well as frequency of each NSSI behavior. The difference between males and females on lifetime frequency of NSSI was not significant, $\chi^2(3, N = 211) = 3.75$, $p > .05$. As for NSSI behaviors, burning was more common among women than men, $\chi^2(4, N = 211) = 13.66$, $p < .01$; so were scratching, $\chi^2(4, N = 211) = 13.37$, $p = 01$, and sticking self with needles, $\chi^2(4, N = 211) = 13.96$, $p < .01$. For other NSSI behaviors, the interaction of gender and frequency of NSSI was not significant.

Among self-injurers, 40.3% (n = 85) reported that they experienced physical pain during self-injury acts, while 46.9% (n = 99) reported that they sometimes experienced pain and 12.3% (n = 26) did not report any experience of pain during

NSSI acts. One participant (0.5 %) did not answer this question. A chi-square analysis was run to explore the gender difference in terms of presence of physical pain during NSSI acts, and it was not significant, $\chi^2(2, N = 210) = 0.61, p > .05$.

2.2.5. Correlations among Study Variables

Zero-order correlations among study variables across groups were examined and the results are summarized in Table 2.6.

Difficulties in emotion regulation, as indicated by total DERS scores, was positively correlated with self-criticism (r = .59), negative affect (r = .65), and thought suppression (r = .48), $p < .01$. Total DERS scores also correlated positively with all its subscale scores; namely clarity (r = .65), non-acceptance (r = .78), goals (r = .70), impulse (r = .83), strategies (r = .88), and awareness (r = .38), ps < .01. Emotion dysregulation was negatively correlated with self-compassion (r = -.70), satisfaction with coping (r= -.60) and positive affect (r = -.33), ps < .01.

Table 2.6. *Correlations among Study Variables across Groups (N = 406).*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Self-compassion	1												
2.Self-criticism	**-.64****	1											
3.Thought suppression	**-.42****	**.35****	1										
4.Positive affect	**.34****	**-.**16**	-.11*	1									
5.Negative affect	**-.58****	**.53****	**.48****	-.24**	1								
6.DERS total	**-.70****	**.59****	**.48****	**-.33****	**.65****	1							
7.Clarity	**-.46****	**.41****	**.30****	**-.32****	**.45****	**.65****	1						
8.Non-accept	**-.48****	**.53****	**.38****	-.16**	**.49****	**.78****	**.39****	1					
9.Goals	**-.49****	**.36****	**.38****	-.26**	**.37****	**.70****	**.33****	**.41****	1				
10.Impulse	**-.54****	**.47****	**.39****	-.17**	**.58****	**.83****	**.48****	**.57****	**.51****	1			
11.Awareness	**-.31****	.25**	.08	-.24**	.18**	**.38****	**.36****	.24**	.05	.19**	1		
12.Strategies	**-.67****	**.49****	**.43****	**-.32****	**.60****	**.88****	**.43****	**.63****	**.62****	**.69****	.12*	1	
13. Coping*	**.54****	**-.37****	-.25**	**.47****	**-.43****	**-.60****	**-.46****	**-.42****	**-.37****	**-.49****	**-.33****	**-.53****	1

Note: DERS: Difficulties in Emotion Regulation Scale; Coping: Satisfaction with adopted coping strategies; * $p < .05$, ** $p < .01$

Self-criticism correlated positively with negative affect (r = .53), thought suppression (r = .35), and clarity (r = .41), non-acceptance (r = .53), goals (r = .36), impulse (r = .47), awareness (r = .25), and strategies (r = .49) subscales of the DERS, $p < .01$. Self-criticism was negatively correlated with self-compassion (r = -.64), satisfaction with coping strategies (r = -.37) and positive affect (r = -.16), ps < .01.

Except those reported above, self-compassion scores correlated positively with positive affect (r = .34) and satisfaction with coping (r = .54), ps < .01. They correlated negatively with thought suppression (r = -.42), negative affect (r = -.58), and clarity (r = -.46), non-acceptance (r = -.48), goals (r = -.49), impulse (r = -.54), awareness (r = -.31), and strategies (r = -.67) subscales of the DERS, ps < .01.

Thought suppression had positive correlations with negative affect (r = .48), and clarity (r = .30), non-acceptance (r = .38), goals (r = .38), impulse (r = .39), and strategies (r = .43) subscales of the DERS, $ps < .01$. Thought suppression correlated negatively with satisfaction with coping (r = -.25, $p < .01$) and positive affect (r = -.11, $p < .05$).

Except previously reported correlations, positive affect correlated positively with perceived coping, r = .47, $p < .01$. It correlated negatively with negative affect (r = -.24), and clarity (r = -.32), non-acceptance (r = -.16), goals (r = -.26), impulse (r = -.17), awareness (r = -.24), and strategies (r = -.32) subscales of the DERS, $ps < .01$.

Except those reported above, negative affect correlated negatively with perceived coping (r = -.43) and positively with the DERS subscales; namely clarity (r = .45), non-acceptance (r = .49), goals (r = .37), impulse (r = .58), awareness (r = .18), and strategies (r = .60), $ps < .01$.

Except previously reported correlations, participants' satisfaction with adopted coping strategies correlated negatively with the DERS subscales; namely clarity (r = -.46), non-acceptance (r = -.42), goals (r = -.37), impulse (r = -.49), awareness (r = -.33), and strategies (r = -.53), $ps < .01$.

Lastly, clarity subscale of the DERS correlated positively with non-acceptance (r = .39), goals (r = .33), impulse (r = .48), awareness (r = .36), and strategies (r = .43), *ps* < .01. Non-acceptance subscale correlated positively with goals (r = .41), impulse (r = .57), awareness (r = .24), and strategies (r = .63) subscales, *ps* < .01. Scores on the goals subscale correlated positively with impulse (r = .51) and strategies (r = .62), *ps* < .01. Impulse subscales scores correlated positively with awareness (r = .19) and strategies (r = .69) subscales, *ps* < .01. Awareness subscale scores correlated positively with scores on the strategies (r = .12) subscale, p < .05.

2.2.6. Group Differences

Five independent samples t-tests were run to compare NSSI and control groups on emotion dysregulation, self-compassion, self-criticism, thought suppression, and satisfaction with adopted coping strategies (see Table 2.7 and Figure 2.1).

As expected, self-injurers (M = 98.09, SD = 21.58) had higher emotion dysregulation levels than non-injurers (M = 80.63, SD = 18.90), t(404) = 8.64, p < .001. Furthermore, as expected, self-injurers (M = 65.77, SD = 10.94) reported engaging in more self-criticism than non-injurers (M = 57.35, SD = 9.94), t(404) = 8.10, p < .001. In line with our hypothesis, self-injurers (M = 54.70, SD = 10.34) had higher thought suppression scores than non-injurers (M = 49.67, SD = 11.48), t(404) = 4.64, p < .001. As we hypothesized, self-injurers (M = 65.78, SD = 16.12) scored lower on self-compassion scale than the control group (M = 78.98, SD = 16.26), t(404) = -8.21, p < .001. Lastly, as expected, self-injurers (M = 3.25, SD = 1.08) were less satisfied with their coping skills than non-injurers (M = 3.70, SD =.82), t(404) = -5.37, p < .001.

Table 2.7. *Independent Groups t-test Results Comparing NSSI and Control groups on Study Variables*

	NSSI	**Control**	
	Mean (SD)	**Mean (SD)**	**(df) t-test**
Emotion dysregulation	98.09 (21.58)	80.63 (18.90)	(404) 8.64*
Self-criticism	65.77 (10.94)	57.35 (9.94)	(404) 8.10*
Thought suppression	54.70 (10.34)	49.67 (11.48)	(404) 4.64*
Self-compassion	65.78 (16.12)	78.98 (16.26)	(404) -8.21*
Satisfaction with coping	3.25 (1.08)	3.70 (.82)	(404) -5.37*

* $p < .001$

Note: NSSI = Non-suicidal self-injury

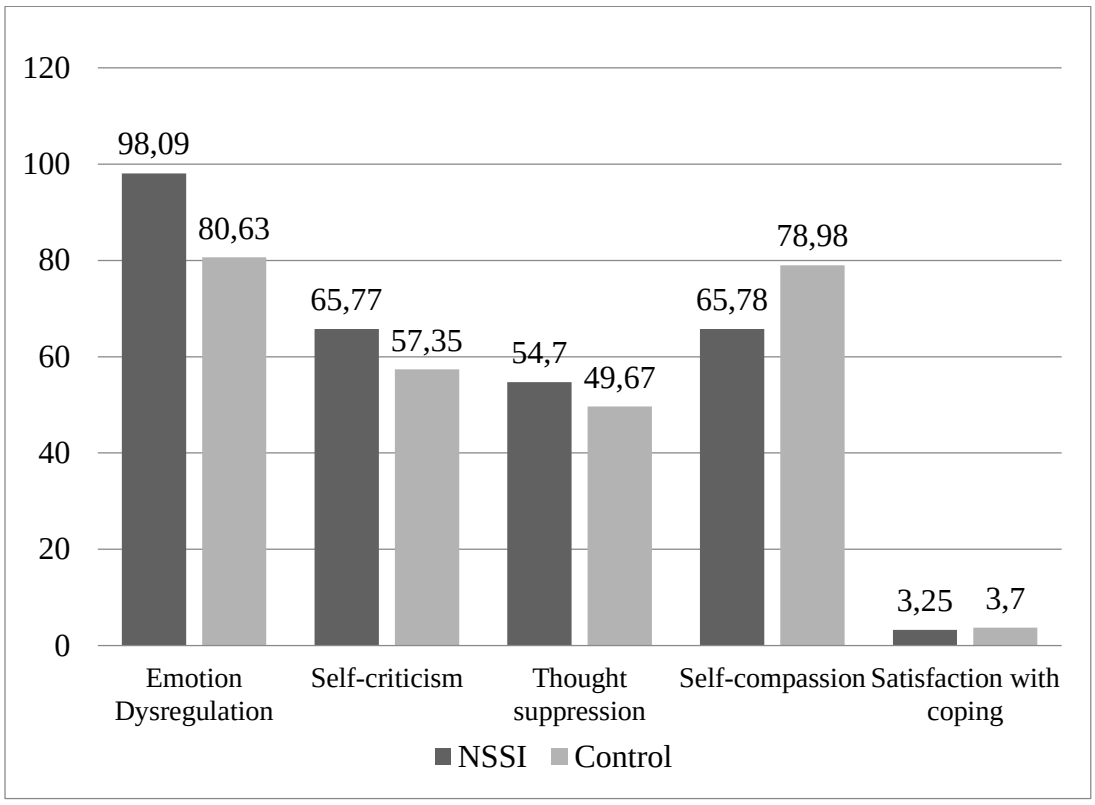


Figure 2.1. Mean Scores of Self-Injury Status (NSSI vs. control) on Study Variables

Next, a one-way between-subjects multivariate analysis of variance (MANOVA) was conducted to test the effects of group type (NSSI vs. control) on 6 subscales of DERS (i.e., non-acceptance, goals, impulse, strategies, clarity, and awareness). Results are summarized in Table 2.8 and Figure 2.2. There was a statistically significant main effect of group type on emotion dysregulation, Multivariate $F(6,399) = 13.63$, $p < .001$, Wilk's $\Lambda = .830$, partial $\eta^2 = .17$. Given the significance of the overall test, the univariate main effects were examined by using an adjusted Bonferroni alpha level of .01. Group type had a significant univariate main effect on non-acceptance (F (1, 404) = 55.77; $p < .001$; partial $\eta^2 = .12$), goals (F (1, 404) = 22.74; $p < .001$; partial $\eta^2 = .05$), impulse (F (1, 404) = 63.71; $p < .001$; partial $\eta^2 = .14$), strategies (F (1, 404) = 45.63; $p < .001$; partial $\eta^2 = .10$), and clarity (F (1, 404) = 29.15; $p < .001$; partial $\eta^2 = .06$) subscales of the DERS. Univariate effect of group type on awareness subscale was marginally significant, F (1, 404) = 7.54; $p = .01$.

Follow-up comparisons indicated that NSSI group reported more non-acceptance ($M = 14.99$, $SD = 5.68$) than the control group ($M = 11.13$, $SD = 4.60$). NSSI group ($M = 17.86$, $SD = 4.34$) also had higher scores on the goals subscale than the control group ($M = 15.75$, $SD = 4.57$). Furthermore, self-injurers significantly higher scores on the impulse ($M = 15.94$, $SD = 5.83$) and strategies ($M = 21.83$, $SD = 7.22$) subscales than non-injurers ($M = 11.79$, $SD = 4.50$; $M = 17.25$, $SD = 6.40$; respectively). Lastly, NSSI group had higher scores on clarity ($M = 12.44$, $SD = 3.55$) and awareness ($M = 15.04$, $SD = 3.46$) than the control group ($M = 10.64$, $SD = 3.16$; $M = 14.08$, $SD = 3.59$, respectively).

Table 2.8. *Group Differences on DERS and PANAS subscales*

	NSSI	**Control**	**Multivariate *F* (6,399)**	**Univariate *F* (1, 404)**
	Mean (SD)	**Mean (SD)**		
DERS Subscales			13.63**	
Clarity	12.44 (3.55)	10.64 (3.16)		29.15**
Non-acceptance	14.99 (5.68)	11.13 (4.60)		55.77**
Goals	17.86 (4.34)	15.75 (4.57)		22.74**
Impulse	15.94 (5.83)	11.79 (4.50)		63.71**
Strategies	21.83 (7.22)	17.25 (6.40)		45.63**
Awareness	15.04 (3.46)	14.08 (3.59)		7.54*
	NSSI	**Control**	**Multivariate *F* (2,403)**	**Univariate *F* (1, 404)**
	Mean (SD)	**Mean (SD)**		
PANAS Subscales			20.12**	
Positive affect	32.71 (6.06)	33.25 (5.94)		3.02
Negative affect	25.44 (7.40)	21.01 (6.60)		40.25**

* $p = .01$; ** $p < .001$

Note: DERS: Difficulties in Emotion Regulation Scale; NSSI: Non-Suicidal Self-Injury

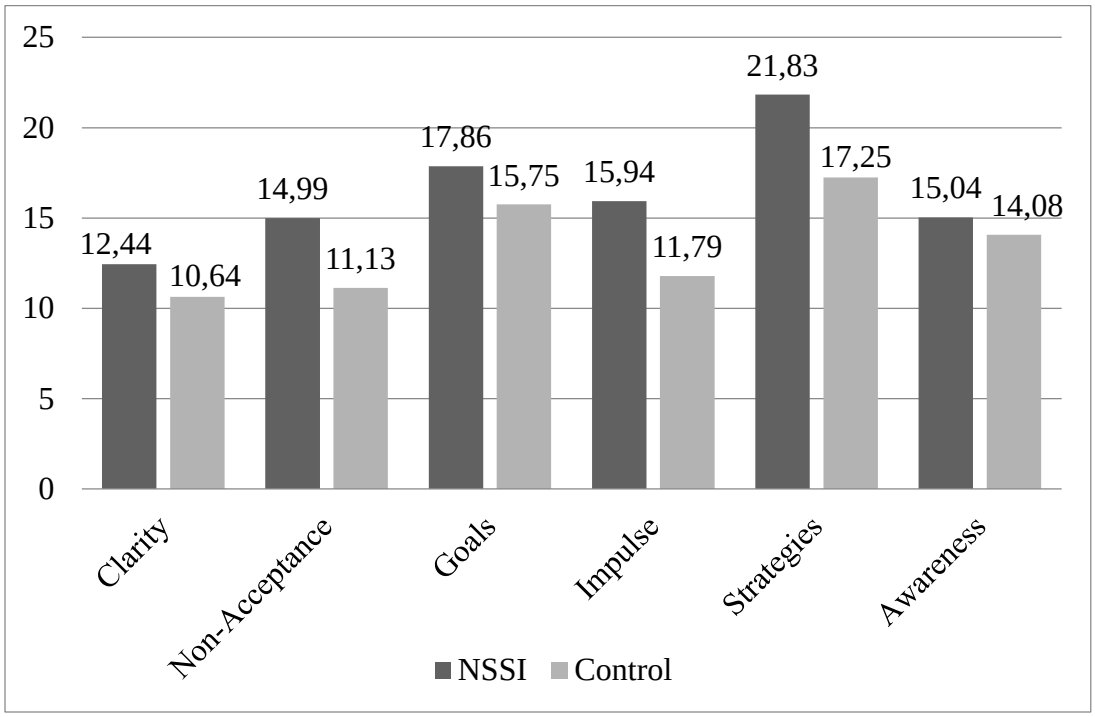


Figure 2.2. Mean scores of self-injury status (NSSI vs. control) on subscales of the Difficulties in Emotion Regulation Scale.

Next, a one-way between subjects MANOVA was run to test the effects of group type (NSSI vs. control) on the two subscales of the PANAS (i.e., negative affect and positive affect). Results revealed a significant main effect of group type on affect, Multivariate $F(2,403) = 20.124$, $p < .001$, Wilk's $\Lambda = .909$, partial $\eta^2 = .09$. Since the overall test was significant, the univariate main effects were examined by using an adjusted Bonferroni alpha level of .03. Group type had a significant univariate main effect on negative affect (F (1, 404) = 40.25; $p < .001$; partial $\eta^2 = .09$), but not on positive affect, F (1, 404) = 3.02, $p > .03$. Follow-up comparisons showed that self-injurers (M = 25.44, SD = 7.40) reported more negative affect than non-injurers (M = 21.01, SD = 6.60). Results are summarized in Table 2.7 and Figure 2.3.

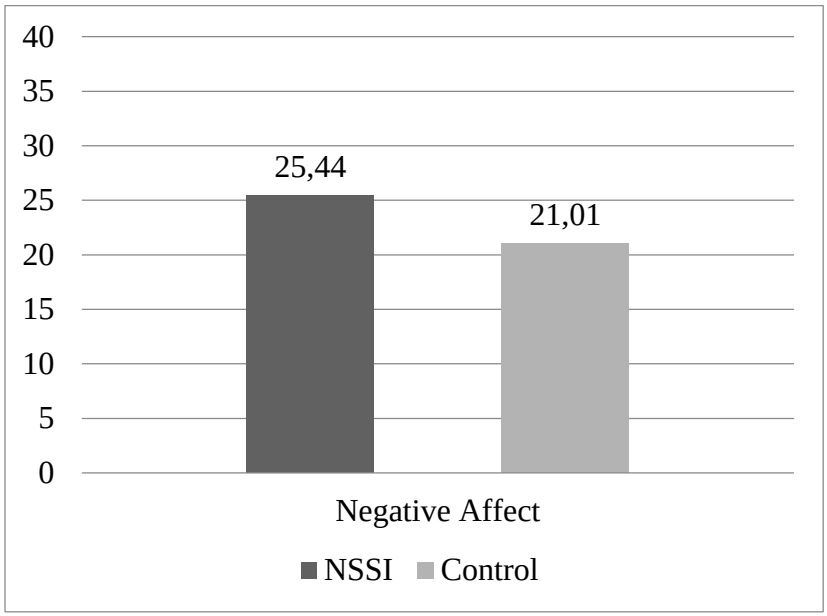


Figure 2.3. Mean scores of self-injury status (NSSI vs. control) on negative affect subscale of the Positive and Negative Affect Schedule.

2.2.7. Logistic Regression Analyses

In order to assess the prediction of engaging in NSSI behavior by using the study variables, a binary logistic regression analysis was performed with NSSI entered as the binary dependent variable (i.e., NSSI vs. control). At step 1, gender was added, and at step 2, positive and negative affect measures were added as predictors. At Step3, emotion dysregulation, self-criticism, thought suppression, and self-compassion were added as predictors of the NSSI status (see Table 2.9).

At Step 1, a test of the full model with gender as predictor against a constant-only model was not significant, $\chi 2(1) = 0.01$, $p > .05$, Nagelkerke $R^2 = .00$. At step 2, when positive and negative affect are added in the equation, the model was statistically significant, $\chi^2(2) = 38.71$, $p < .001$, Nagelkerke $R^2 = .12$. This result indicated that the model with three predictors reliably discriminated self-injury status beyond the model with gender as predictor. Hosmer and Lemeshow test showed that the observed model matched the expected model, $\chi 2(8) = 4.37$, $p > .05$.

The null model and the model with gender predicted 52.2% of the participants into NSSI and control groups correctly; and on the basis of three predictors, overall correct classification rate increased to 63.6%. Model with three predictors predicted 64% of the self-injurers and 63.2% of the non-injurers correctly. Based on the Wald criterion, only negative affect significantly predicted participants' self-injury status, Wald (1) = 31.30, $p < .001$. As the participants' negative affect increased, their probability of engaging in self-injury increased by 9.3%.

At Step 3, a test of the full model with 6 predictors against a three-predictor model was statistically significant, $\chi^2(4) = 49.33$, $p < .001$, Nagelkerke $R^2 = .26$. This result suggested that self-criticism, thought suppression, emotion dysregulation, and self-compassion reliably discriminated self-injury status beyond the model with gender, positive and negative affect as predictors. Hosmer and Lemeshow test showed that the observed model matched the expected model, $\chi2(8) = 6.74$, $p > .05$. When all predictors are in the equation, the overall correct classification rate was 72%. Correct classification rates were 74.4% for self-injurers and 69.4% for non-injurers; indicating that self-injurers were predicted better than the participants who did not report a history of self-injury. Based on the Wald criterion, emotion dysregulation significantly predicted participants' self-injury status, Wald (1) = 8.77, $p < .01$. As the participants' emotion dysregulation increased, their probability of engaging in self-injury increased by 2.5%. Furthermore, self-criticism also significantly predicted participants' self-injury status, Wald (1) = 6.55, $p = .01$.

Table 2.9. *Logistic Regression Analysis of Self-Injury status*

Variables	*B*	Wald χ^2-test	Odds Ratio	95% Confidence Interval Ratio for Odds Ratio	
				Lower	Upper
Step 1					
Gender	-.02	0.01	0.98	0.65	1.48
(Constant)	0.10	0.35	1.11		
Step 2					
Gender	0.10	0.22	1.11	0.72	1.71
Positive Affect	-0.01	0.13	0.99	0.96	1.03
Negative Affect	0.09	31.30****	1.09	1.06	1.13
(Constant)	-1.83	5.28**	0.16		
Step 3					
Gender	-0.03	0.01	0.97	0.61	1.55
Positive Affect	0.02	1.11	1.02	0.98	1.07
Negative Affect	0.00	0.00	1.00	0.96	1.05
Self-criticism	0.04	6.55**	1.04	1.01	1.07
Thought suppression	0.00	0.02	1.00	0.98	1.03
Emotion dysregulation	0.03	8.77***	1.03	1.01	1.04
Self-compassion	-0.02	3.47*	0.98	0.96	1.00
(Constant)	-3.73	4.77**	0.02		

*p = .06, **p < .05, ***p < .01, ****p < .001.

As participants' self-criticism increased, their probability of engaging in self-injury also increased by 3.6%. Lastly, self-compassion was marginally statistically significant while regressing NSSI; Wald (1) = 3.47, p = .06. As participants' self-compassion increased, their probability of engaging in self-injury decreased by 1.9%.

2.3. Discussion of the Study 1

The present study had three objectives: first; to explore the rate and characteristics of NSSI among a sample of Turkish college students, second; to investigate factors that distinguish people with NSSI from the non-self-injurers (i.e., emotion dysregulation, positive and negative affect, self-criticism, thought suppression, and self-compassion); and thirdly, to identify the factors regressing the presence of NSSI.

The rate of NSSI in the screening sample was alarmingly high. Because of the high frequency of certain NSSI behaviors, we decided to exclude individuals who endorsed only in behaviors reported by more than 25% of the sample (i.e., interfering with wound healing, banging or hitting self, pinching, and biting) based on the assumption that they may not be clinically significant behaviors in the present sample. Still, the rate of NSSI was found as 47.92%. This rate is much higher than the previously reported rates in studies with Turkish university student (e.g, Öksüz & Malhan, 2005; Toprak et al., 2011) and adolescent samples (e.g., Somer et al., 2015; Oktan, 2014); as well as various studies conducted in other parts of the world (e.g., Whitlock et al., 2006). For example, in a college student sample Toprak and colleagues (2011) found lifetime prevalence of NSSI as 15.4%. Further, Whitlock and colleagues (2006) and Heath and colleagues (2008) reported lifetime prevalence of NSSI among college students as 17% and 11.68%, respectively. However, there are also studies that reported similar rates as in the present study. To illustrate, Williams and Hasking (2010) found the rate of NSSI in their young adult sample as 47.4%. Likewise, rates of 41% and 46.5% were reported by Paivio and McCulloch (2004), and Lloyd-Richardson and colleagues (2007) in a community sample of young adults and adolescents, respectively. Furthermore, two other studies with adults reported rates of NSSI as 43.6% (Hasking et al., 2008) and 41% (Paivio & McCulloch, 2004). The high rate of NSSI in the present study may be related to the methodological factors such as the use of a behavioral checklist as an assessment tool; which will further be discussed in Chapter IV.

The present study also investigated characteristics of NSSI. Notably, 40.8% of participants with a history of NSSI reported more than 20 lifetime acts of NSSI; confirming previous findings that NSSI is a highly repetitive behavior. As for methods of self-injury, interfering with wound healing was the most commonly endorsed behavior, followed by banging or hitting self, pinching, and biting. Least commonly endorsed method, on the other hand, was burning. Burning was also the least common method of self-injury in studies by Somer and colleagues (2015) and Ross and Heath (2002). Cutting has been cited as the most common method of NSSI in the majority of previous reports (e.g., Ross & Heath, 2002); although in the present study, it was not a commonly endorsed behavior. This finding is in line with a number of previous studies with non-clinical samples. For example, Lloyd-Richardson and colleagues (2007) reported that picking at wounds as the most frequently endorsed behavior in their adolescent sample, reported by 44% of the participants; however, eliminated participants who only endorsed in picking at wounds because of its high frequency and questionable clinical meaningfulness, based on the logic that we pursued in the present study. Similarly, Oktan (2014) indicated that preventing wounds from healing and hitting self were most commonly endorsed NSSI behaviors. Furthermore, Zetterqvist and colleagues (2013) reported that most commonly endorsed behaviors in their community sample of adolescents were biting and hitting oneself on purpose. Thus, considering that the current sample was a non-clinical college sample, our data revealing the most commonly endorsed methods seems consistent with the previous reports. However, since validity of NSSI methods has yet to be established, we do not know the clinical meaningfulness of each NSSI behaviors. For example, preventing wounds from healing may not be a strong indicator of NSSI as compared to cutting. Therefore, there is a need for research to explore the validity of each method.

As for gender differences, we found that the rate of NSSI among females as higher than males in the screening sample, however this gender difference disappeared when we applied a more conservative criterion of NSSI. More specifically, we excluded a substantial number of female participants (n = 167) from the initial NSSI

group; either because they reported less than 10 episodes of lifetime NSSI and they did not engage in NSSI in the past year; or they only did engage in NSSI behaviors considered as less serious in the present study. As previously discussed, literature on gender differences in the frequency of NSSI is inconclusive; some studies reporting higher rates among females and some reporting equal rates across genders (Bresin & Schoenleber, 2015). The present finding suggests that inconsistent findings may partly be explained by different conceptualization and measurement of NSSI across studies. Further, we explored whether there is a gender difference in pain perception during NSSI acts (as measured by ISAS), and found no difference; which also is consistent with previous work (e.g., Andover et al., 2010). Moreover, we compared males and females on frequency of engaging in each NSSI behavior, and found that burning, scratching, and sticking self with needles were more common among females. We did not find any gender difference for the remaining NSSI behaviors. The gender difference in scratching is consistent with the previous studies that also explored gender differences in NSSI methods (e.g., Andover et al., 2010; Sornberger et al., 2012) and a recent meta-analysis by Bresin and Schoenleber (2015). However, a number of studies reported cutting as more commonly endorsed by females than males, and burning as more common by males than females (e.g., Andover, Primack, Gibb, & Pepper, 2010). Inconsistently, we found comparable rates of cutting among males and females; and burning was more common among females in the present sample. Our finding on burning is consistent with two studies conducted with Turkish (Oktan, 2014) and Belgian (Van Camp, Desmet, & Verhaeghe, 2011) samples. Moreover, similar gender rates in cutting was reported in previous work (e.g., Zoroğlu et al., 2003). However, gender differences in methods of NSSI have been neglected by the majority of previous studies, which prevents us from reaching a conclusion regarding gender. Furthermore, there is also a certain need for studies reporting on gender differences in different aspects of self-injurious behaviors in Turkish samples, and their potential meanings within culture.

The present study found evidence that individuals with a history of NSSI experience greater levels of emotion dysregulation, and appear to have more deficits in specific

dimensions of emotion regulation as well (as measured by the DERS and its subscales); especially on impulse and non-acceptance subscales. Not surprisingly, regarding relative contribution of various associated factors in predicting the presence of NSSI, emotion dysregulation was the strongest predictor of NSSI over gender and other variables. This finding on emotion dysregulation is consistent with substantial empirical evidence indicating that in both clinical and non-clinical populations, individuals with NSSI have increased trait emotion dysregulation (Andover & Morris, 2014), and they also score higher on specific dimensions of emotion dysregulation (e.g., Anderson & Crowther, 2012; Gratz & Roemer, 2008; Heath et al., 2008). Therefore, the present findings confirm our hypothesis that among a set of psychological variables, emotion dysregulation is the strongest predictor, and associate of self-injury.

In the present study, as expected, self-injurers scored higher on self-criticism, thought suppression, and negative affect measures; and lower on a measure of self-compassion as compared to non-injurers. This finding is in agreement with previous research suggesting that individuals with NSSI are highly self-critical (e.g., Claes et al., 2012), engage in avoidance behaviors such as thought suppression (e.g., Najmi et al., 2007), have increased trait negative affectivity (e.g., Baetens et al., 2011), and are less compassionate towards themselves (e.g., Xavier et al., 2016). Furthermore, self-injurers in our sample were less satisfied with their adopted coping strategies as compared to non-injurers. Along with emotion dysregulation; self-criticism and self-compassion were significant predictors of the presence of NSSI after the effect of gender, and positive and negative affectivity were statistically controlled for. Self-criticism is one of the most consistent correlates of NSSI in the empirical literature (Glenn et al., 2014; Hamza et al., 2014), and our findings further support its role in NSSI. Furthermore, the present study suggested that individuals with higher levels of self-compassion are less likely to engage in NSSI; which supports limited previous evidence that self-compassion may be a protective factor against NSSI (e.g., Jiang et al., 2016). Our results also supported thought suppression as an associated factor of NSSI; however, when other factors such as emotion

dysregulation and self-criticism are in the equation, it was not a significant predictor of NSSI. This finding may be related to the shared variance between thought suppression and emotion dysregulation. As for negative and positive affectivity, we found negative, but not positive, affect to be a factor that distinguishes self-injurers from others; a finding consistent with a previous report by Klonsky and colleagues (2003).

Overall, the present study has expanded our understanding on the frequency, methods, gender differences, and associated factors of NSSI in a sample of Turkish college students. Our findings suggested that NSSI is a very frequent and repetitive behavior in the present sample, with similar rates among males and females. The only gender difference we found was in the methods of NSSI. Among various psychological factors, emotion dysregulation appeared to be the strongest predictor of the presence of NSSI. However, high levels of self-criticism, negative affect, thought suppression, and low levels of self-compassion also distinguished people with a history of NSSI from those without such history. Strength and limitations of the present study, as well as implications and future suggestions will be discussed in Chapter IV.

CHAPTER III

STUDY II

Previous work on associated factors of NSSI has suggested that self-injurers have lower levels of pain sensitivity as compared to non-injurers (e.g., Glenn et al., 2014; Weinberg & Klonsky, 2012). Interestingly, perception of pain appears to change with mood; for example, a previous study reported that pain sensitivity of self-injurers decreases under interpersonal distress (Gratz et al., 2011). Furthermore, self-injurers also appear to have difficulty in tolerating distress and may have increased physiological reactivity when exposed to distressing stimuli (Nock & Mendes, 2008). However, laboratory-based studies and objective assessment methods in the study of NSSI are limited, and previous findings relied heavily on retrospective self-report data (Hamza & Willoughby, 2015). Moreover, majority of existing studies have small sample sizes, and findings are often derived from clinical populations.

Based on the previous evidence and gaps in the literature, the general aim of the present laboratory-based study was to explore pain perception and the effects of a distressing card-sorting task on pain-related variables in a sample of Turkish college students. Furthermore, the second aim of the study was to identify differences between self-injurers and non-injurers in distress tolerance and physiological reactivity to distressing stimuli. Moreover, since there are only a few studies that explored physiological reactivity to pain among self-injurers, we compared self-injurers and non-injurers on skin conductance levels during laboratory-based pain induction.

More specifically, in Study 2, we had the following objectives:

(1) To examine the effect of a distressing task on the pain perception measures (i.e., pain threshold, pain endurance, pain tolerance, and pain intensity ratings) in self-injurers and non-injurers, and to identify any group differences on these variables as a function of distress,

(2) To evaluate group differences in physiological reactivity to painful stimuli (i.e., cold pressor test),

(3) To evaluate differences between individuals with NSSI and controls in distress tolerance (as measured by a distressing card-sorting task) and physiological reactivity during the distressing task (as measured by skin conductance levels),

(4) To examine the effect of pain induction on psychological distress as measured by subjective levels of distress and physiological reactivity, and to identify any group differences on these variables as a function of pain induction,

(5) To evaluate the association between pain perception measures, psychological variables (i.e., emotion dysregulation, self-compassion) and characteristic of NSSI (i.e., age of onset, NSSI functions),

(6) To examine the functions of NSSI and to identify the most commonly endorsed functions.

Specific research questions and hypotheses of Study 2 were as follows:

(1) What are the effects of distress on pain perception (as measured by pain threshold, pain endurance, pain tolerance, and pain intensity ratings) in self-injurers and non-injurers?

Hypothesis 1.1. We expected main effect of group type (NSSI vs. control) on pain measures to be significant. Specifically, based on previous studies (e.g., Glenn et al., 2014), we hypothesized that self-injurers would have higher pain threshold, pain endurance, and pain tolerance scores at both baseline and after distress induction than controls.

Furthermore, based on previous findings (e.g., McCoy et al., 2010), we hypothesized that self-injurers would rate pain as less intense at threshold and tolerance time points at both baseline, and after distress induction.

Hypothesis 1.2. We hypothesized that increased distress would change pain perception in people with a history of NSSI. Specifically, we predicted that self-injurers would have an increase in pain threshold, pain endurance, and pain tolerance measures, and a decrease in pain intensity ratings after the distress induction; however, this would not be true for non-injurers. In other words, we expected a Group x Time interaction.

(2) Are there any differences between self-injurers and non-injurers in physiological reactivity during exposure to painful stimuli?

Hypothesis 2.1. Based on the habituation hypothesis (Hooley et al., 2010), we predicted that self-injurers would show less physiological reactivity during pain induction as compared to non-injurers.

(3) Are there any differences between people with NSSI and controls in terms of distress tolerance and physiological reactivity to distress?

Hypothesis 3.1. Similar to the findings of Nock and Mendes (2008), we hypothesized self-injurers to have poorer distress tolerance than non-injurers, in other words, we predicted that self-injurers would quit the distressing card-sorting task earlier than controls,

Hypothesis 3.2. We hypothesized that both self-injurers and non-injurers would have increased subjective units of distress and physiological reactivity in response to distressing card-sorting task. However, we expected this increase to be more pronounced for self-injurers. Thus, we predicted a significant Group x Time interaction.

(4) What will be the effect of pain induction on measures of subjective level of distress and physiological reactivity?

Hypothesis 4.1. Based on previous work (e.g., Franklin et al., 2010), we expected pain to have an emotion regulatory effect in both NSSI and control groups. However, we hypothesized that self-injurers would have greater decreases in their subjective levels of distress scores and physiological reactivity after the cold pressor task at time-2 as compared to non-injurers. Thus, we expected a significant Group x Time interaction.

(5) What is the association between pain perception measures, psychological variables (i.e., emotion dysregulation, self-compassion) and characteristics of NSSI (i.e., NSSI functions, age of onset)?

Hypothesis 5.1. Since there has been limited evidence on the association between pain perception and psychological variables in previous work, this research question was kept exploratory. Still, we hypothesized that self-compassion would be negatively associated with pain threshold, pain endurance, and pain tolerance; and positively associated with pain intensity ratings.

Hypothesis 5.2. Based on the habituation hypothesis (Hooley et al., 2010), we expected that an early onset of NSSI would be negatively associated with pain threshold, endurance, and tolerance measures; and positively associated with pain intensity ratings.

(6) What are the commonly endorsed functions of NSSI in the present sample?

Hypothesis 6.1. In line with the previous research (Klonsky, 2007), we predicted that emotion regulation and self-punishment functions would be among the most commonly endorsed functions of NSSI.

3.1. Method

3.1.1. Participants

Participants of the Study 1 served as a participant pool for the current study and eligible participants from the Study 1 sample who volunteered were recruited to the Study 2. Inclusion criteria for the NSSI group was as follows: (1) having engaged in at least one episode of a serious non-suicidal self-injury (NSSI) behavior (i.e., cutting, burning, carving, severe scratching, rubbing skin against rough surface, and sticking self with needles) in the past year or having engaged in at least 10 serious NSSI behaviors in lifetime, (2) being right handed, (3) being between the ages of 18 to 25. For the control group, inclusion criteria were never having engaged in NSSI in lifetime, being right handed, and being between the ages of 18 to 25. The exclusion criteria for either group was being older than 25 years old, being left-handed, and being on psychiatric medication at the time of the study.

The final sample of the current study consisted of 80 (40 self-injurers and 40 controls) undergraduate students between the ages of 18 to 25. The mean age of the total sample was 21.14 (*SD* = 1.16). There were 48 females (60%) and 32 males (40%). The majority of participants (62.5%, *n* = 50) perceived themselves as a member of the middle socioeconomic status (SES), while 15 participants (18.8%) as a member of middle-high SES, 11 participants (13.8%) as middle-low SES, 2 participants as low SES (2.5%) and the remaining 2 perceived themselves as a member of high SES (2.5%). All study participants were single (100%). In terms of treatment status, only one participant reported that he/she had been receiving some kind of psychological treatment (i.e., psychotherapy) at the time of the study (1.3%).

When we look at the distribution of demographic variables within groups, the mean age was 20.98 (*SD* = 1.59) and 21.30 (*SD* = 1.52) for the NSSI and control groups, respectively. As for gender distribution, in both groups there were 16 (40%) males and 24 (60%) females.

Twenty-two (55%) of the NSSI group and 28 (70%) of the control group perceived themselves as a member of middle SES; while 9 (22.5%) of the NSSI group and 6 (15%) of the control group as middle-high SES, and 1 (2.5%) participant in each group as high SES. Furthermore, 6 (15%) and 5 (12.5%) of the participants perceived themselves as a member of middle-low SES in NSSI and control groups, respectively. Lastly, 2 (5%) participants in the NSSI perceived themselves as low SES, while none of the participants in the control group reported so (0%). In terms of marital status, all participants in both groups were single. In the control group, one participant (2.5) reported receiving treatment for psychological problems while none of the NSSI group (0%) reported doing so.

Distribution of demographic variables across and within groups can be seen in Table 3.1.

Table 3.1. *Distribution of Demographic Variables in the Study Sample (N = 80)*

Variables	**NSSI (%)**	**Control (%)**	**Total (%)**
Gender			
Male	16 (40)	16 (40)	32 (40)
Female	24 (60)	24 (60)	48 (60)
Socioeconomic Status			
High	1 (2.5)	1 (2.5)	2 (2.5)
Middle-high	9 (22.5)	6 (15)	15 (18.8)
Middle	22 (55)	28 (70)	50 (62.5)
Middle-low	6 (15)	5 (12.5)	11 (13.8)
Low	2 (5)	0	2 (2.5)
Marital Status			
Single	40 (100)	40 (100)	80 (100)
Married	0 (0)	0 (0)	0 (0)
Treatment Experience			
Yes	0 (0)	1 (2.5)	1 (1.3)
No	40 (100)	39 (97.5)	79 (98.8)

3.1.2. Assessment

In the current study, both experimental tasks and questionnaires were used for assessment purposes. Participants' reaction to painful stimuli was measured by the cold pressor test procedure. Distress tolerance was assessed by using an experimental task called Distress Tolerance Test (Nock & Mendes, 2008). Physiological reactivity was assessed by measuring participants' level of skin conductance. A subjective units of distress scale was used to measure participants' distress levels during the experimental tasks. The questionnaires, on the other hand, involved a demographic form which included questions on demographic variables (e.g., age, perceived SES, marital status) and treatment history. Then, Inventory of Statements about Self-injury (Klonsky & Glenn, 2009; Klonsky & Olino, 2008), Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004), The Self-Compassion Scale (Neff, 2003a), and a single item measuring participants' satisfaction with their adopted coping strategies were administered.

3.1.2.1. Inventory of Statements about Self-injury (Klonsky & Glenn, 2009; Klonsky & Olino, 2008, ISAS)

The ISAS is a self-report measure of the frequency and the functions of NSSI. The scale is composed of two sections: Behavioral section measures the lifetime frequency of 12 NSSI behaviors and functional section assesses 13 functions of NSSI. Research showed that psychometric properties of the ISAS and its Turkish translation were satisfactory (Klonsky & Glenn, 2009; Klonsky & Olino, 2008; Bildik et al., 2013). A more detailed summary regarding the characteristics of the scale can be found in section 2.1.2.1.

In the present study, the first section of the ISAS was administered to the whole sample in order to assess the frequency of NSSI behaviors. The second section of the scale was only administered to the NSSI group to assess functions of self-injury. Following Cohen and colleagues (2015) and Whitlock and colleagues (2013), the frequency of NSSI was classified into five categories (i.e., 0, 1, 2–5, 6–20, and more than 20 NSSI episodes).

3.1.2.2. Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004; DERS)

DERS (Gratz & Roemer, 2004) is a 36-item self-report scale that was developed to assess difficulties in emotion regulation among adults. DERS is composed of 6 subscales that measures different dimensions of emotion dysregulation. It was translated into Turkish by Rugancı and Gençöz (2010). Studies showed that DERS and its Turkish version had good psychometric properties (Gratz & Roemer, 2004; Rugancı & Gençöz, 2010). A more detailed discussion of the scale can be found in section 2.1.2.2.

In the present study, DERS and its subscales were used to measure participants' level of emotion dysregulation.

3.1.2.3. The Self-Compassion Scale (Neff, 2003a; SCS)

The SCS (Neff, 2003a) is a 26-item self-report scale that measures level of self-compassion. The original SCS consists of 6 subscales and has good psychometric properties (Barnard & Curry, 2011; Neff, 2003a). The SCS has been adapted into Turkish by Deniz and colleagues (2008). The Turkish version consisted of 24 items and demonstrated a single factor. A more detailed summary regarding the characteristics of the scale can be found in section 2.1.2.5.

In the present study, the SCS was administered to assess participants' levels of self-compassion.

3.1.2.4. The Cold Pressor Test

The Cold Pressor Test (CPT) is a widely used method of experimental pain induction in psychological research (e.g., Franklin, Aaron, Arthur, Heilbron, & Prinstein, 2010; Franklin et al., 2012). In the current study, CPT was utilized for inducing pain to participants to measure their responses to pain. Participants underwent the CPT task twice; before and after the DTT.

In CPT procedure, participants were instructed to put their right hands in a cooler that was placed next to them that contained water fixed at 5 °C with the help of a water circulator. Following the methods of previous studies (e.g., Franklin, Hessel, & Prinstein, 2011) participants were instructed to keep their hands in the water as long as they could withstand pain. They were allowed to keep their hand in the water for maximum 5 minutes. Participants were asked to inform the researcher when they first felt pain (i.e., pain threshold) and when the pain become intolerable that they pull out their hands from the water (i.e., pain tolerance). At both points, participants were asked to report subjective units of painfulness on a scale of 1 to 10; a point of 1 indicating "barely painful" and a point of 10 indicating "painful at an intolerable intensity". Pain threshold was calculated as the time elapsed until the participants first reported pain. Pain tolerance was calculated as the time elapsed from participants' placement of hand until they pulled their hand out of the water. Pain endurance was calculated as the time elapsed between the participants first reported pain and when they indicated that pain was intolerable (i.e., pain tolerance minus pain threshold). Time was measured in milliseconds and was converted into seconds during data entry.

3.1.2.5. The Distress Tolerance Test (Nock and Mendes, 2008; DTT)

Participants' level of tolerating distress was measured by a card-sorting task developed by Nock and Mendes (2008). In this task, stimulus cards from the Wisconsin Card Sort Test (WCST; Grant & Berg, 1948) were used and standard WCST instructions were read while four key cards were placed face up on the table. The task requires participants to match the cards from a deck to these cards on the table; but they are not told how to sort the cards. The researcher simply tells the participants if the card placed is correct or not. Participants are required to get through the first 20 of the total of 64 cards and after that they are supposed to decide whether they would like to go further or not.

No matter where the participant place the cards, experimenter says "correct" to the first three cards (to engage the participants in the task), "incorrect" to the next 7 (to induce distress), "correct" to the 11th card (to reengage the participant) and incorrect to all the remaining cards (to induce distress). In this task, the number of cards for which the participant persists were taken as a measure of distress tolerance (Nock and Mendes, 2008). Since there is an opportunity to end the task after the 20th card, it was expected that participants with higher tolerance to distress would get through more cards than others.

The DTT has been utilized by two previous studies (i.e., Anestis et al., 2012; Nock and Mendes, 2008); and findings provided evidence for its construct validity. More specifically, lower levels of distress tolerance as measured by the DTT were associated with higher physiological reactivity to distress, as well as higher likelihood of NSSI behaviors (Nock and Mendes, 2008). Furthermore, DTT was associated with impulsive behaviors (Anestis et al., 2012).

In the present study, the DTT was administered in order to assess participants' levels of distress tolerance. A manipulation check for the DTT was conducted to see whether if it induced distress to participants as planned. A paired samples t-test was run to compare subjective units of distress scores (SUD) of the participants before and after the DTT, and was found significant, $t(78) = -5.32$, $p < .001$. This result indicated that DTT induced distress as expected, and participants reported more SUD after DTT ($M = 79.57$, $SD = 44.96$) than before DTT ($M = 55.65$, $SD = 32.57$).

3.1.2.6. Skin Conductance Level

Following previous studies (e.g., Brain et al., 2002; Brain et al., 1998; Nock & Mendes, 2008) participants' skin conductance level (SCL) was measured in order to assess physiological arousal as indexed by changes is skin conductance. Individual differences in skin conductance are found to be reliably associated with psychopathological conditions (Dawson, Schell, & Filion, 2000; as cited in Nock &

Mendes, 2008) and there is a strong empirical foundation for studying physiological arousal as indicated by SCL (Nock & Mendes, 2008).

In the present study, SCL was measured via ProComp Infiniti (Though Technology, Canada) sensors placed on the distal phalanges of the middle and ring fingers of the participant's non-dominant hand during the experimental tasks. The sampling speed was 256 Hz. SCLs were recorded during the entire experimental procedure and time marks were placed at each experimental step; namely, at the beginning and end of the baseline period, before and after CPT applications, before, at the 20th card and at the end of DTT.

3.1.2.7. Subjective Units of Distress Scale

A two-item subjective units of distress (SUD) scale was developed for the current study for the aim of measuring participants' affect during the experimental procedure. Before the DTT, at the 20th card, at the end of the DTT, and after CPT (Time 2), participants were asked to rate their levels of distress and relaxation on a scale of 0 to 100, with 0 indicating the least distressed/relaxed they had ever felt in their lives and 100 indicating the most distressed/relaxed they had had ever felt in their lives. A single SUD score was arrived by reversing the scores on the "relaxed" scale and adding it up with scores from the "distressed" scale.

3.1.3. Procedure

Eligible participants who participated in Study 1 were contacted via e-mail and were invited to Study 2. Volunteers were scheduled for an approximately one-hour experimental session in the laboratory located at METU Department of Psychology. Laboratory record form and instructions for the experimental procedure can be seen in Appendix C and D, respectively.

The author and an undergraduate research assistant were present during the experimental session. Before the experiment, each participant read and signed

informed consent forms. Then, the author read general instructions about the study and answered any questions addressed by participants. For the measurement of skin conductance, sensors were placed on distal phalanges of the middle and ring fingers of the participants' left hands. In order to obtain a more accurate measurement of physiological reactivity, participants were instructed to sit still and quietly during the experimental procedure, and were allowed to speak only between each step. Their SCLs were recorded during the whole experimental session; that is during CPT (Time 1 and Time 2) and DTT procedures. After the placement of sensors, a one-minute resting period was given for the participants to get comfortable with the procedure. Then a two-minute baseline measurement was conducted while participants were still resting.

Following the baseline measurement, the researcher gave instructions for the CPT, and started the CPT (Time 1) procedure to induce pain. Researcher asked participants to mark the point when they first experienced pain and to rate the intensity of pain. Participants were also asked to rate the intensity of pain at the point they pulled out their hands. Researcher measured the elapsed time with a stopwatch. Next, DTT was conducted to induce distress and measure participants' distress tolerance levels. Following DTT, a second CPT (Time 2) was conducted to explore whether participants' perception of pain has changed after distress induction. The procedure of CPT-2 (Time 2) was exactly the same as CPT-1 (Time 1).

Participants were asked to report their subjective units of distress on scale of 0 (extremely relaxed) to 100 (extremely distressed) at four time points: before DTT, after the 20th card, at the end of the DTT, and at the end of CPT-2. You can refer to Figure 3.1 for a summary of the study procedure.

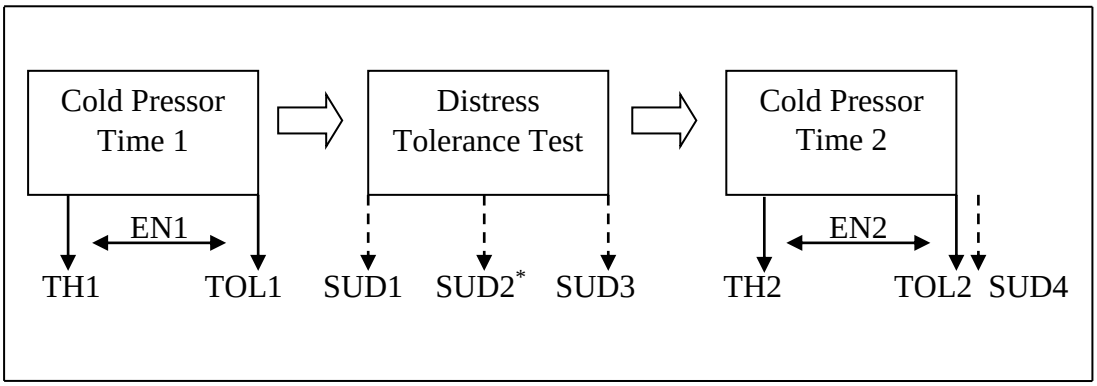


Figure 3.1. Study-2 Procedure

*20th card of the Distress Tolerance Test
Note: TH: Pain threshold; TOL: Pain tolerance; EN: Pain endurance; SUD: Subjective Units of Distress

After the experimental procedure, sensors were removed from the participants' hand, and they were asked to fill out the psychometric measures. A debriefing form was given to all study participants and their questions were answered at the end of the study (see Appendix B). An information booklet that contains brief information on NSSI and contact numbers for campus counselling services were provided to participants with NSSI before they leave.

3.1.4. Data Analysis

First, data was checked for accuracy and incomplete surveys were excluded from the data. Then, univarite analyses of normality were conducted to check for any deviations from normal distribution. Descriptive information of the study measures and Cronbach alpha coefficients for the study scales were calculated. Next, correlation coefficients among study variables were computed.

Before the main analyses, self-injurers and non-injurers were compared on demographic variables by using independent sample t-tests and chi-square tests of independence to eliminate any group differences due to differences on demographic variables.

Furthermore, in order to assess the characteristics of NSSI, such as methods and functions, participants' responses to the ISAS were evaluated. Next, correlation coefficients among study measures were calculated.

Before the skin conductance analyses, we used MATLAB R2016 (Mathworks Inc., Natick, MA, USA) to perform several pre-processing steps. First, we removed the low-frequency linear drift which may possibly be caused by experimental conditions by applying a linear de-trending function. After the detrending step, we applied baseline correction to get rid of extreme values by removing out mean value of baseline period from all time series. We used 10000 points (40 sec) Normalized Gaussian filter (alpha = 0.5, sigma = 2) to remove out the high-frequency noise. To obtain mean SCL values for each experimental step, we divided the data into time points according to the previously placed time marks.

As for the main analyses, independent samples t-tests were conducted to compare NSSI and control groups on emotion dysregulation, self-compassion, and satisfaction with adopted coping strategies. Next, a one-way between subjects multivariate analyses of variance was conducted to assess the differences of group type (i.e., NSSI vs. control) on the DERS subscales.

In order to assess the effect of group type and distress manipulation on pain variables, five 2 (group) x 2 (time) mixed-design analyses of variance (ANOVA) were conducted to test the effects of group type (NSSI vs. control) and time (before vs. after the DTT) on pain variables (i.e., pain threshold, tolerance, endurance, and intensity rating at threshold and tolerance time points).

As for distress tolerance comparisons, an independent samples t-test was run to compare NSSI and control groups on the number of cards they persisted in DTT. Next, a 2 (group) x 2 (time) mixed-design ANOVA was conducted to test the effects of group type (NSSI vs. control) and time (before and at the 20^{th} card of DTT) on subjective units of distress (SUD) scores.

Next, to test the effects pain induction on psychological distress, a 2 (group) x 2 (time) mixed-design ANOVA was conducted to test the effects of group type (NSSI vs. control) and time (before vs. after the CPT-2) on SUD scores.

As for physiological reactivity analyses, two independent samples t-tests were conducted to explore group differences during pain induction (CPT-1 and CPT-2) on skin conductance levels. Next, two independent samples t-tests were utilized to compare skin conductance means of NSSI and control groups from the beginning of DTT until the 20^{th} card and until the end of the test. In order to assess the effects of distress and group on physiological reactivity, a 2 (group) x 2 (time) mixed-design ANOVA was conducted to test the effects of group type (NSSI vs. control) and time (before vs. after the DTT) on skin conductance levels. Then, to see the effects of group and pain induction on physiological reactivity, a 2 (group) x 2 (time) mixed-design ANOVA was conducted to test the effects of group type (NSSI vs. control) and time (before vs. after CPT-2) on skin conductance levels.

Skin conductance data was analyzed by MATLAB R2016 (Mathworks Inc., Natick, MA, USA) software. The rest of the data was analyzed through the Statistical Package of Social Sciences (SPSS), version 22.0 for Windows.

3.2. Results of the Study 2

Before the analyses, univariate analyses of normality were conducted using a skewness/kurtosis index of + or - 2. These analyses revealed that clarity subscale of the Difficulties in Emotion Regulation Scale (DERS) was significantly kurtic (kurtosis = 2.52). A square-root transformation was used to satisfy the assumptions of normality, and the transformed variable was used for the rest of the analyses.

3.2.1. Descriptive Information of the Measures of the Study

Measures used in the study were examined on means, standard deviations, minimum and maximum score ranges, and internal reliability coefficients for the total scale and the subscales (see Table 3.2). These measures were DERS and its subscales (i.e., non-acceptance, goals, impulse, strategies, clarity, awareness), Self-Compassion Inventory (SCI), Inventory of Statements about Self-Injury (ISAS) and its functions (i.e., autonomy, interpersonal boundaries, interpersonal influence, peer bonding, revenge, self-care, sensation seeking, toughness, affect regulation, anti-dissociation, anti-suicide, marking distress, self-punishment), pain perception measures (i.e., pain threshold, endurance, tolerance, and pain intensity ratings at CPT-1 and CPT-2), and distress tolerance test (DTT) measures (i.e., number of cards pursued, SUD before, at the 20^{th} card, and after DTT), and lastly SUD after CPT-2.

Table 3.2. *Descriptive Information of the Study Measures across Groups*

Measures	N	Mean	SD	Range	Cronbach's α
DERS	79	85.70	20.24	49-137	.94
Clarity	79	3.32	0.49	2.24-5	.84
Non-acceptance	79	12.23	4.60	6-26	.87
Goals	79	15.95	4.51	5-25	.91
Impulse	79	13.42	5.17	6-30	.89
Awareness	79	14.67	3.61	6-25	.68
Strategies	79	18.19	6.71	8-35	.90
Self-Compassion Inventory	78	73	18.40	29-118	.95
Satisfaction with coping	79	3.57	1.00	1-5	-
ISAS					
Intrapersonal Functions	40	11.83	6.76	3-26	.88
Affect regulation	40	3.53	1.26	1-6	.46
Anti-suicide	40	1.10	1.95	0-6	.93
Marking distress	40	2.88	1.95	0-6	.75
Self-punishment	40	2.58	1.92	0-6	.78
Anti-dissociation	40	1.75	1.86	0-6	.63
Interpersonal Functions	40	10.26	7.83	1-29	.87
Interpersonal boundaries	40	1.08	1.65	0-6	.74
Interpersonal influence	40	1.03	1.40	0-6	.64
Revenge	40	1.40	1.41	0-4	.63
Sensation Seeking	40	1.53	1.75	0-6	.64
Peer bonding	40	0.43	0.98	0-4	.63
Toughness	40	2.45	2.05	0-6	.83
Autonomy	40	0.90	1.35	0-4	.64
Pain Perception					
Pain threshold-1	80	26.49	22.73	7-163	-
Pain endurance-1	80	70.91	89.77	1-280	-
Pain tolerance-1	80	97.40	100.13	22-300	-
Intensity threshold-1	80	4.41	1.66	1-9	-
Intensity tolerance-1	79	8.06	1.53	3-10	-
Pain threshold-2	80	21.20	14.64	3-80	-
Pain endurance-2	80	68.78	87.34	6-284	-
Pain tolerance-2	80	89.98	94.83	9-300	-
Intensity threshold-2	80	4.31	1.77	1-9	-
Intensity tolerance-2	80	8.03	1.86	2-10	-
Distress Tolerance Test					-
Cards pursued	80	35.95	16.44	20-64	-
SUD before	79	55.65	32.57	0-160	-
SUD 20th card	80	87.44	45.86	0-178	-
SUD after	80	78.88	45.10	0-190	-
SUD after CPT-2	79	65.99	37.17	5-160	-

*SUD: Subjective units of distress, CPT: Cold pressor test, ISAS: Inventory of Statements about Self-Injury, DERS: Difficulties in Emotion Regulation Scale

3.2.2. Demographic Comparisons

Participants with a history of non-suicidal self-injury (NSSI) were compared to control participants on age, gender, marital status, and perceived SES to rule out any possible explanations on group differences due to the demographic variables (see Table 3.3).

An independent samples t-test was run to compare self-injurers and non-injurers on age. Self-injurers (M = 20.98, SD = 1.59) did not differ from non-injurers (M = 21.30, SD = 1.52) on age, $t(78) = 0.35$, $p > .05$. In both groups, all participants were single. Furthermore, gender distributions were exactly same in NSSI and control groups, and 60% (n = 24) of each group consisted of female participants. A chi-square test of independence was conducted to examine the relationship between group type and perceived SES, and it was not significant, $\chi^2(4, N = 80) = 3.41$, $p > .05$.

Table 3.3. *Demographic Characteristics of the Participant Groups*

Variables	NSSI (n=40)	Control (n=40)	Statistic
Mean (SD) age in years	20.98 (1.59)	21.30 (1.52)	$t(78) = 0.35$
Gender (% female)	60	60	
Marital status (% single)	100	100	
Perceived SES (%)			$\chi^2(4, N = 80) = 3.41$
Low	0	2.5	
Low-medium	7.5	6.3	
Medium	27.5	35	
High-medium	11.3	7.5	
High	1.3	1.3	

3.2.3. Characteristics of Self-Injury

Next, participants' responses to the Inventory of Statements about Self-Injury (ISAS) were analyzed to determine characteristics of the NSSI group. Self-injurers in this sample reported at least 11 episodes of NSSI. Majority of the NSSI group (87,5%, *n* = 35) reported engaging in self-injury more than 20 times, while only 5 individuals (12.5%) reported engaging in NSSI between 6 to 20 times. The age of onset for NSSI behaviors ranged from 5 to 17, and the average age of onset was 10.85 (*SD* = 3.84; median = 12). We employed a median split to categorize participants into two groups: age of onset before (*n* = 16) and after (*n* = 17) the age of 12. Several independent samples t-tests were conducted to compare these two groups on different functions of NSSI, emotion dysregulation, self-compassion, and pain variables. Two groups had significant differences on *bonding with peers* function of NSSI, and pain threshold during CPT-2, and marginally significant difference on self-compassion. Specifically, those who first engaged in NSSI before age of 12 (*m* = 0.94, *sd* = 1.39) reported higher scores on *bonding with peers* function as compared to those who engaged in NSSI older than 12 (*m* = 0.06, *sd* = 0.24), $t(31) = 2.57$, $p < .05$. Furthermore, those with an earlier onset (*m* = 30.94, *sd* = 20.18) had higher pain threshold at time-2 CPT following the distressing task, as compared to those with a later onset (*m* = 18.59, *sd* = 8.80), $t(31) = 2.30$, $p < .05$. Lastly, self-injurers who initiated NSSI before the age of 12 (*m* = 67.07, *sd* = 15.50) scored higher on self-compassion than those who started after 12 (*m* = 57.12, *sd* = 12.33), $t(30) = 2.02$, $p = .05$.

The most commonly reported NSSI behavior was interfering with wound healing (n = 32; 80%), followed by banging or hitting self (*n* = 29, 72.5%), biting (n = 29, 72.5%), and pinching (*n* = 28, 72%). The least common NSSI behaviors was swallowing dangerous substances (*n* = 7, 15.4%), followed by burning (*n* = 11, 27.5%), rubbing skin against rough surface (*n* = 13, 32.5%), and cutting (*n* = 14, 35%). The frequency of participants who engaged in NSSI behaviors as listed in ISAS can be seen in Table 3.4.

Table 3.4. *The frequency of participants who engaged in non-suicidal self-injury behaviors at least once in their lifetime (N = 40).*

NSSI behaviors	N	%
Cutting	14	35
Burning	11	27.5
Carving	16	38.5
Pulling hair	19	47,5
Severe scratching	17	42.5
Rubbing skin against rough surface	13	32.5
Sticking self with needles	17	42.5
Swallowing dangerous substances	7	15.4
Interfering with wound healing*	32	80
Banging or hitting self*	29	72.5
Pinching*	28	70
Biting*	29	72.5

Note: NSSI: Non-suicidal self-injury

* Behaviors coded as less serious in Study 1

Forty percent of the self-injurers (n = 16) reported that they experienced physical pain during self-injury, while 52.5% (n = 21) reported that they sometimes experienced pain, and only 7.5% (n = 3) did not report any experience of pain during self-injury. The majority of the self-injurers (84.6%; n = 33) reported less than one hour of elapses between the time they had the urge to self-harm and to the point that they acted on the urge, while 10.3% (n = 4) reported less than 1-3 hours of elapses, 2.6% (n = 1) reported 3 to 6 hours of elapses, and 2.6% (n = 1) reported 6 to 12 hours of elapses between their urge to harm themselves and real act of self-harm.

When they were asked if they performed self-harm when they had been alone or not, 46.2% (*n* = 18) of the self-injurers reported that they were alone while engaging in self-harm, 48.7% (*n* = 19) reported that they were sometimes alone, and 5.1% (*n* = 2) reported that they were not alone during self-harm episodes. The majority of the self-injurers (66.7%, *n* = 26) reported that they do or did want to stop self-harming, while the rest of the sample (33.3%, *n* = 13) reported that they do not or did not want to stop self-harming behavior.

Regarding the functions of NSSI, the most frequently reported function of NSSI was affect regulation; which was reported by all participants. After affect regulation function, marking distress (*n* = 34, 85%) and self-punishment (*n* = 33, 82.5%) were other most frequently endorsed functions of NSSI. Least frequently endorsed function was bonding with peers (*n* = 8, 20%), followed by anti-suicide (*n* = 12, 30%) and autonomy (*n* = 16, 40%). Among individual items, most commonly reported items were "*calming myself down*" (*n* = 36, 90%), "re*ducing anxiety, frustration, anger, or other overwhelming emotions*" (*n* = 36, 90%) and, "*releasing emotional pressure that has built up inside of me*" (*n* = 35, 87.5%), which together make up the affect regulation subscale of the ISAS. Least frequently endorsed items were "*fitting in with others*" (*n* = 2, 5%) and "*keeping a loved one from leaving or abandoning me*" (*n* = 5, 12.5%). Next, a paired sample test was conducted to compare self-injurers' scores on interpersonal and intrapersonal functions. Because of the different item numbers in these dimensions, average scores were computed by dividing each dimensions' total score to number of items. As a result, we found that self-injurers reported intrapersonal (*m* = 2.37, *sd* = 1.35) functions more frequently than interpersonal functions (*m* = 1.28, *sd* = 0.98), $t(39) = 5.75$, $p < .001$. Descriptive statistics for functions of NSSI can be seen in Table 3.2.

3.2.4. Correlations among Study Variables

Next, zero-order correlations among study variables were calculated. First, correlations between pain variables and emotion dysregulation variables across

groups were examined and the results are summarized in Table 3.5. Emotion dysregulation, as indicated by total DERS scores, was positively correlated with participants' ratings of pain intensity at pain threshold in both time 1 (r[79] = .36) and time 2 (r[79] = .38), $p < .01$. As for the DERS subscales, goals subscale of the DERS had a significant positive correlation with pain threshold (r[79] = .25) and pain tolerance (r[79] = .23) in time 1, $p < .05$. Furthermore, goals subscale also correlated positively with pain intensity ratings at pain threshold in both time 1 (r[79] = .31, $p < .01$) and time 2 (r[79] = .27, $p < .05$). Strategies subscale correlated positively with pain intensity ratings at pain threshold in both time 1 (r[79] = .37) and time 2 (r[79] = .35), $p < .01$.

Similarly, DERS non-acceptance and impulse subscales correlated positively with participants' pain intensity ratings at pain threshold in both time 1 (r[79] = .26, $p < .05$; r[79] =.30, $p < .01$; respectively) and in time 2 (r[79] = .37, $p < .01$; r[79] = .24, $p < .05$; respectively). Lastly, awareness subscale correlated negatively with pain threshold in time-1 (r[79] = -.23), $p < .05$.

As the next step, correlations of self-compassion, satisfaction with coping, and number of persisted cards in DTT with pain variables (i.e., pain threshold, paint tolerance, pain intensity at threshold and tolerance, and pain endurance at Time 1 and Time 2) were calculated. Number of persisted cards in DTT did not correlate significantly with any of the pain variables. Significant correlations were as follows: Self-compassion correlated negatively with participants' pain intensity ratings at pain threshold in time 1 (r[78] = -.41) and time 2 (r[78] = -.42), $p < .01$. Furthermore, participants' ratings of their satisfaction with their coping ability also correlated negatively with their pain intensity ratings at pain threshold in time 1 (r[79] = -.38) and time 2 (r[79] = -.29), $p < .01$.

Table 3.5. *Correlations among Pain and Emotion Regulation Variables across Groups*

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
1. Threshold 1	1												
2. Threshold 2	**.54****	1											
3. Tolerance 1	**.55****	**.45****	1										
4. Tolerance 2	**.56****	**.57****	**.84****	1									
5.Intensity at threshold 1	-.14	.05	-.28*	-.21	1								
6.Intensity at tolerance 1	**-.58****	-.30**	**-.58****	**-.52****	**.36****	1							
7. Intensity at threshold 2	.11	.20	-.18	-.13	**.64****	.29**	1						
8.Intensity at tolerance 2	**-.43****	-.19	-.58**	-.61**	.26*	**.75****	.25*	1					
9. Endurance 1	**.36***	**.37***	**.98****	**.80****	-.28*	**-.50****	-.23	**-.54****	1				
10. Endurance 2	**.52****	**.45****	**.84****	**.99****	-.24*	**-.52****	-.18	**-.63****	**.81****	1			
11. DERS Total	.08	.04	.07	.01	**.36****	.11	**.38****	.03	.06	.00	1		
12. Goals	.25*	.04	.23*	.17	**.31****	-.06	.27*	-.07	.20	.17	**.78****	1	
13. Strategies	.10	.00	.01	-.03	**.37****	.14	**.35****	.08	-.02	-.03	**.91****	**.73****	1

Table 3.5 (cont'd). *Correlations among Pain and Emotion Regulation Variables across Groups*

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
14. Non-Acceptance	-.03	.11	-.07	-.08	.26*	.19	**.37****	.07	-.08	-.10	**.67****	**.33****	**.56****	1			
15. Impulse	.11	-.05	.05	-.02	.30*	.01	.24*	-.07	.03	-.01	**.80****	**.66****	**.71****	**.35****	1		
16. Clarity	.04	.13	.11	.02	.13	.11	.22	.09	.11	.00	**.71****	**.46****	**.57****	**.31****	**.47****	1	
17. Awareness	-.23*	-.01	-.01	-.03	.06	.10	.15	.04	.05	-.03	.30**	-.07	.02	**.32****	.04	.30**	1

* $p < .05$; ** $p < .01$; DERS: Difficulties in Emotion Regulation Scale

We also calculated the correlations between age of onset for NSSI and other study variables. The age participants started self-injury was negatively correlated with pain threshold after distress induction (r[33] = -.36, p < .05), self-compassion scores (r[32] = -.51, p < .01), and bonding with peers function of NSSI (r[33] = -.28, p < .05). Age of onset had significant positive correlations with skin conductance levels after CPT1 (r[32] = .37, p < .05), affect regulation function of NSSI (r[33] = .35, p < .05), and strategies subscale of the DERS (r[32] = .39, p < .05). The correlations between age of onset and the remaining study variables were not significant.

Next, for the NSSI group, correlations among functions subscales of the ISAS (interpersonal functions [autonomy, interpersonal boundaries, interpersonal influence, peer bonding, revenge, self-care, sensation seeking, toughness] and intrapersonal functions [affect regulation, anti-dissociation, anti-suicide, marking distress, self-punishment]) and pain, emotion dysregulation, self-compassion, satisfaction with coping, and number of persisted cards in DTT variables were calculated (see Table 3.6 and Table 3.7).

Table 3.6. *Correlations of Intrapersonal Functions of NSSI with Pain, Coping, Self-compassion and Emotion Regulation Variables (N = 40)*

Variables	TH 1	ITH 1	TOL 1	ITOL 1	TH 2	ITH 2	TOL 2	ITOL 2	EN1	EN2	DER	COM	COPE	DT
IP Functions Total	.29	.22	.04	-.07	**.35***	.21	.21	-.03	.25	.18	.11	**-.37***	-.24	.04
Affect regulation	.16	.09	-.09	-.07	-.01	.09	.01	-.13	-.15	.02	.23	**-.40***	-.14	.04
Anti-suicide	**.49****	.10	.21	-.23	**.40***	.24	**.37***	-.19	.09	**.34***	.01	-.10	-.01	-.05
Marking distress	.17	.25	-.04	.01	.28	.11	.10	.12	-.10	.06	.09	-.28	-.30	.00
Self-punishment	-.05	**.38***	-.16	.15	.21	**.33***	-.05	.22	-.17	-.09	.13	**-.45***	-.30	.06
Anti-dissociation	.30	-.01	.19	-.12	**.35***	-.02	**.33***	-.17	.13	.31	.01	-.19	-.12	.11
Self-care	.27	.05	.11	-.14	**.32***	.29	.14	.03	.04	.11	-.16	-.19	.11	-.04

Note: IP: Intrapersonal, TH: Threshold, ITH: Intensity at threshold; TOL: Tolerance; ITOL: Intensity at tolerance, DER: Difficulties in emotion regulation; COM: Self-compassion, COPE: Satisfaction with coping, DT: Distress tolerance

* $p < .05$; ** $p < .01$

Table 3.7. *Correlations of Interpersonal Functions of NSSI with Pain, Coping, Self-compassion and Emotion Regulation Variables (N = 40)*

Variables	TH 1	ITH 1	TOL 1	ITOL 1	TH 2	ITH 2	TOL 2	ITOL 2	EN1	EN2	DER	COM	COPE	DT
IP Functions Total	**.35***	-.09	.311	**-.39***	.31	-.01	**.39***	-.32	.25	**.37***	.02	-.10	.08	.20
Interpersonal boundaries	.19	.05	.07	-.19	.26	.17	.26	-.15	.02	.24	-.01	-.11	-.06	.19
Interpersonal influence	.17	-.22	.25	-.17	.05	-.14	.13	.04	.23	.13	.04	-.12	-.05	-.11
Revenge	**.33***	-.17	.02	**-.31***	-.21	-.16	-.01	-.22	-.08	.03	.22	-.16	.06	.05
Sensation Seeking	.16	-.01	**.36***	-.25	**.33***	-.07	**.45****	-.30	**.35***	**.44****	.12	-.05	-.03	.05
Peer bonding	-.06	-.16	.25	-.37*	-.02	-.16	.16	**-.39***	.29	.17	.06	.28	.01	**.32***
Toughness	**.36***	.00	**.34***	-.30	**.41****	-.05	**.43****	-.29	.28	**.40***	-.04	-.05	.17	.28
Autonomy	.30	-.07	.18	**-.34***	.26	-.01	.30	**-.43****	.12	.29	-.09	.01	.15	.30

Note: IP: Interpersonal; TH: Threshold, ITH: Intensity at threshold; TOL: Tolerance; ITOL: Intensity at tolerance, DER: Difficulties in Emotion Regulation; COM: Self-compassion, COPE: Satisfaction with coping, DT: Distress tolerance

* $p < .05$; ** $p < .01$

Intrapersonal functions subscale of the ISAS positively correlated with pain threshold in time 2 (r[40] = .35) and negatively correlated with self-compassion scores (r[39] = -.37), p < .05. Under intrapersonal functions factor, affect regulation function negatively correlated with self-compassion, r(39) = -.40, p < .05. Anti-suicide subscale positively correlated with pain threshold in time 1 (r[40] = .49, p < .01) and time 2 (r[40] = .40, p < .05). It also had a positive correlation with pain tolerance (r[40] = .37) and pain endurance (r[40] = .34) at time 2, , p < .05. Self-punishment subscale had a significant positive correlation with pain intensity ratings at threshold both in time 1 (r[40] = .38) and time 2 (r[40] = .33), p < .05. Self-punishment was also negatively correlated with self-compassion scores, r(39) = -.45); p < .05. Anti-dissociation subscale correlated positively with pain threshold (r[40] = .35) and pain tolerance (r[40] = .33) in time 2, p < .05.

Interpersonal functions subscale of the ISAS positively correlated with pain threshold (r[40] = .35) and negatively correlated with pain intensity rating at tolerance (r[40] = -.39) in time 1, p < .05. It also correlated positively with pain tolerance (r[40] = .39) and pain endurance (r[40] = .37), and correlated negatively with pain intensity at tolerance (r[40] = -.32) at time 2, p < .05. Under interpersonal functions factor, revenge subscale had a positive correlation with pain threshold in time 1 (r[40] = .36) and a negative correlation with pain intensity rating at tolerance in time 2 (r[40] = -.31), p < .05. Sensation seeking subscale was positively correlated with pain tolerance in time 1 (r[40] = .36), and pain threshold (r[40] = .33) and pain tolerance (r[40] = -.45) in time 2, p < .05. Sensation seeking also positively correlated with pain endurance at time 1 (r[40] = .35, p < .05) and time 2 (r[40] = .44, p < .01). Peer bonding function of NSSI negatively correlated with pain intensity ratings at threshold in both time 1 (r(40) = -.37) and time 2 (r[40] = -.39), p < .05. Peer bonding also positively correlated with number of cards persisted in DTT, r(39) = .32, p < .05. Furthermore, toughness subscale of the ISAS had significant positive correlations with pain threshold (r[40] = .36) and pain tolerance in time 1 (r[40] = .34), p < .05. It also positively correlated with pain threshold (r[40] = .41), pain tolerance (r[40] = .43) and pain endurance (r[40] = .40) at time 2,

$p < .05$. Autonomy function of NSSI negatively correlated with pain intensity rating at tolerance in time 1 ($r[40] = -.34$, $p < .05$) and time 2 ($r[40] = -.43$, $p < .01$). Lastly, self-care subscale positively correlated with pain threshold in time 2, $r(40) = .32$, $p < .05$.

Lastly, we calculated correlations between mean skin conductance levels during different phases of the experimental session and other study variables. Mean skin conductance levels after DTT (before CPT-2) correlated negatively with goals ($r[76] = -.30$, $p < .01$) and strategies ($r[76] = -.23$, $p < .05$) subscales of the DERS, and anti-suicide ($r[76] = -.56$, $p < .01$) and anti-dissociation ($r[76] = -.41$, $p < .05$) functions of NSSI. Furthermore, skin conductance levels during DTT correlated positively with interpersonal boundaries ($r[38] = .38$) and self-care ($r[38] = .33$) functions of NSSI, $p < .05$. Mean skin conductance levels after CPT-2 had significant negative correlations with pain tolerance ($r[77] = -.42$, $p < .001$) and pain threshold at time-1 ($r[77] = -.30$, $p < .01$), pain tolerance at time-2 ($r[77] = -.39$, $p < .001$), and pain endurance at time-1 ($r[77] = -.23$, $p < .05$) and time-2 ($r[77] = -.37$, $p < .01$). It also correlated negatively with intrapersonal functions of NSSI ($r[39] = -.37$, $p < .05$), goals ($r[77] = -.37$, $p < .01$) and strategies ($r[77] = -.37$, $p < .01$) subscales of the DERS. Correlations between skin conductance and the remaining study variables were not significant.

3.2.5. Group Differences

Three independent samples t-tests were run to compare NSSI and control groups on emotion dysregulation, self-compassion, and satisfaction level for the ability to cope with the problems (see Table 3.8 and Figure 3.2). In accordance with the expectations, self-injurers had higher emotion dysregulation scores ($M = 97.18$, $SD = 18.37$) than non-injurers ($M = 74.50$, $SD = 15.16$), $t(77) = -5.99$, $p < .001$. Furthermore, as expected, self-injurers scored lower on self-compassion ($M = 62.79$, $SD = 14.95$) as compared to non-injurers ($M = 83.21$, $SD = 15.77$), $t(76) = 5.87$, $p < .001$. Lastly, results showed that self-injurers ($M = 3.21$, $SD = 1.06$) were

significantly less satisfied with their coping ability as compared to non-injurers (M = 3.93, SD = .80), $t(77) = 3.43$, $p < .01$.

Table 3.8. *Independent Groups t-test Results Comparing NSSI and Control Groups on Emotion Dysregulation, Self-Compassion, and Satisfaction with Adopted Coping Skills*

	NSSI	**Control**	
	Mean (SD)	**Mean (SD)**	**(df) t-test**
Emotion dysregulation	97.18 (18.37)	74.50 (15.16)	(77) -5.99**
Self-compassion	62.79 (14.95)	83.21 (15.77)	(76) 5.87**
Satisfaction with adopted coping	3.21 (1.06)	3.93 (.80)	(77) 3.43*

** $p < .001$; * $p < .01$

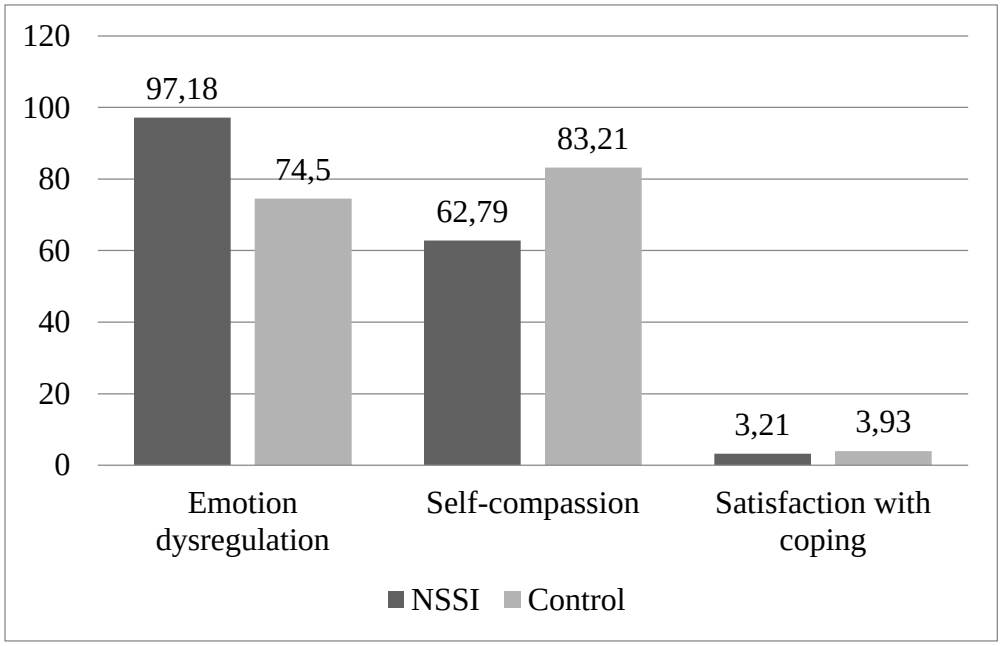


Figure 3.2. Mean scores of self-injury status (NSSI vs. control) on Emotion Dysregulation, Self-Compassion, and Satisfaction with Adopted Coping Skills.

A one-way multivariate analysis of variance (MANOVA) was conducted to test the effects of group type (NSSI vs. control) on 6 subscales of the DERS (i.e., non-acceptance, goals, impulse, strategies, clarity, and awareness). Results are summarized in Table 3.9 and Figure 3.3. There was a statistically significant main effect of group type on emotion dysregulation, Multivariate $F(6,72) = 6.08$, $p < .001$, Wilk's $\Lambda = .664$, partial $\eta^2 = .34$. Given the significance of the overall test, the univariate main effects were examined by using an adjusted Bonferroni alpha level of .01. Group type had a significant univariate main effect on non-acceptance (F (1, 77) = 8.54; $p < .01$; partial $\eta^2 = .10$), goals (F (1, 77) = 22.42; $p < .001$; partial $\eta^2 = .23$), impulse (F (1, 77) = 19.77; $p < .001$; partial $\eta^2 = .20$), strategies (F (1, 77) = 33.23; $p < .001$; partial $\eta^2 = .30$), and clarity (F (1, 77) = 15.09; $p < .001$; partial $\eta^2 = .16$) subscales of the DERS. Follow-up comparisons showed that NSSI group had significantly higher scores than the control group on clarity, strategies, non-acceptance, goals, and impulse subscales of the DERS; but this difference was not significant on the awareness subscale. Means and standard deviations can be seen in Table 3.9.

Table 3.9. *Group Differences on subscales of the Difficulties in Emotion Regulation Scale*

	NSSI	**Control**	**Multivariate *F* (6, 72)**	**Univariate *F* (1, 77)**
	Mean (SD)	**Mean (SD)**		
DERS Subscales			6.08**	
Clarity	3.52 (.48)	3.12 (.43)		15.09**
Non-acceptance	13.69 (4.76)	10.80 (4.01)		8.54*
Goals	18.10 (3.95)	13.85 (4.03)		22.42**
Impulse	15.77 (5.97)	11.13 (2.79)		19.77**
Awareness	15.13 (3.88)	14.23 (3.32)		1.24
Strategies	21.90 (6.47)	14.58 (4.70)		33.23**

* $p < .01$; ** $p < .001$

Note: DERS: Difficulties in Emotion Regulation Scale

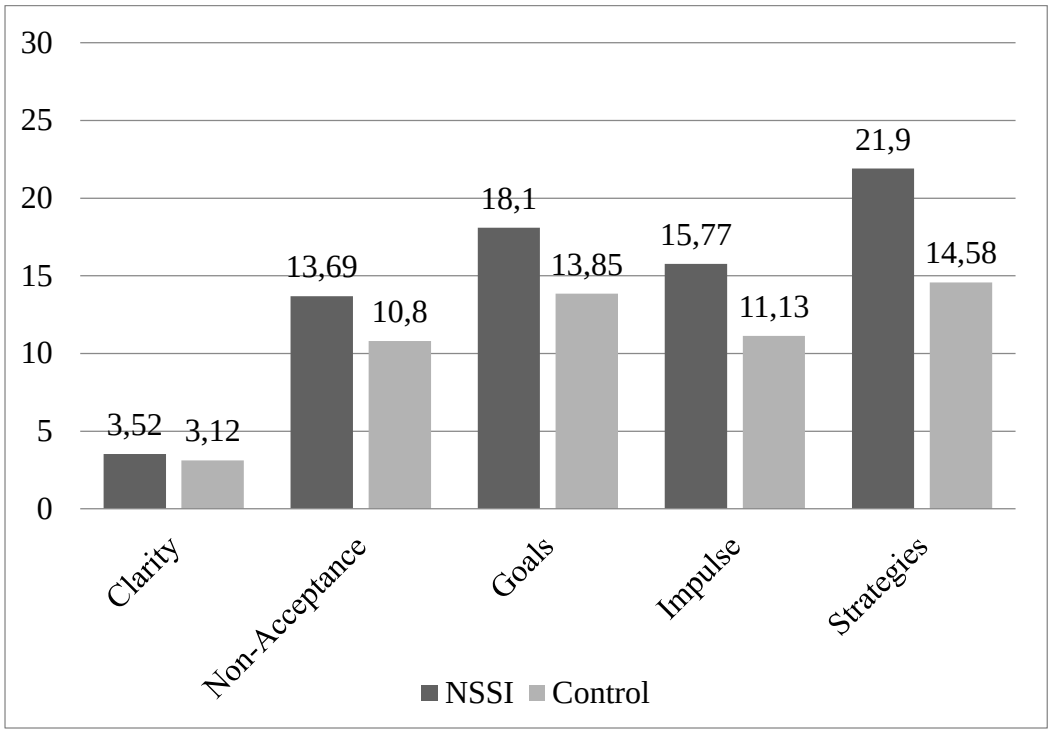


Figure 3.3. Mean scores of self-injury status (NSSI vs. control) on subscales of the Difficulties in Emotion Regulation Scale.

3.2.6. Pain Perception Analyses

In terms of pain variables, we expected that participants with a history of NSSI would have higher pain threshold, pain tolerance, and pain endurance than the control participants at both time-1 and time-2 CPT. Furthermore, we expected that pain threshold, tolerance, and endurance would be higher at time-2 than time-1 for both NSSI and control groups as a result of distress induction via DTT, and this effect would be more dramatic for the NSSI group. Lastly, we expected that self-injurers would rate their pain levels lower than non-injurers on both time-1 and time-2 pain threshold and tolerance points, and they would rate pain as less painful at CPT-2 than CPT-1 as a result of distress induction; but this would not be true for the control participants.

To test these hypotheses, first a 2 (group) x 2 (time) mixed-design analysis of variance (ANOVA) was conducted to test the differences of group type (NSSI vs. control) and time (before vs. after the DTT) on pain threshold (See Figure 3.4). There was a significant main effect of time on pain threshold, F (1, 78) = 5.96, p < .05, suggesting that when the group type is ignored, pain threshold was significantly higher before DTT (M = 26.48, SD = 27.73) than after DTT (M = 21.20, SD = 14.64). Main effect of group on pain threshold was not significant, F (1, 78) = 0.96, p >.05, and suggested that when time point is ignored, NSSI and control groups did not differ on pain threshold. Interaction effect was also not significant, F (1, 78) = 0.11, p >.05.

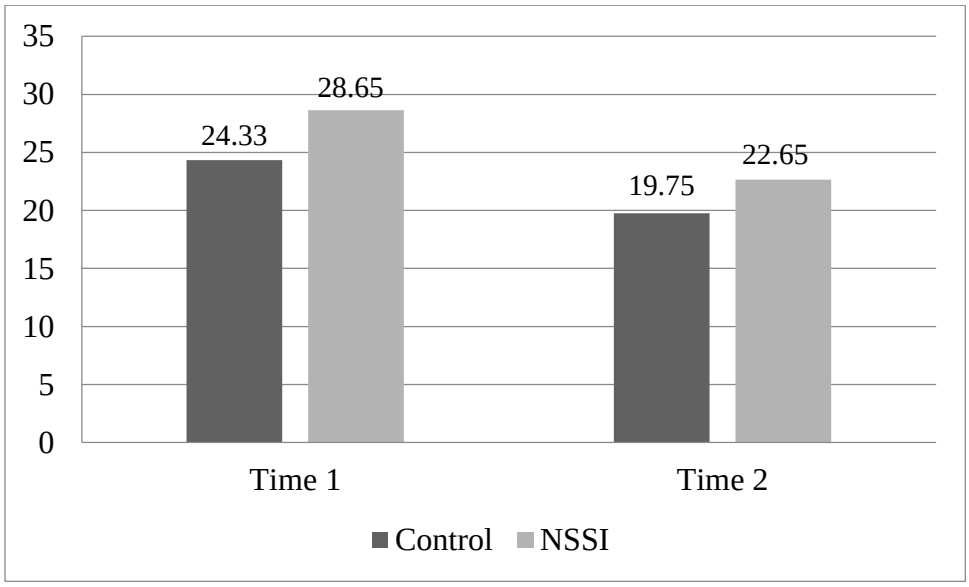


Figure 3.4. Mean Pain Threshold Scores at Time-1 and Time-2

Next, a 2 (group) x 2 (time) mixed-design ANOVA was conducted to examine the differences of group type (NSSI vs. control) and time (before vs. after the DTT) on pain tolerance (Figure 3.5). As expected, main effect of group on pain tolerance was significant, F (1, 77) = 13.23, p < .001. This finding suggested that when time point

is not considered, NSSI group had higher levels of pain tolerance (M = 21.20) as compared to the control group (M = 21.20). Main effect of time on pain tolerance was not significant, F (1, 78) = 1.48, p >.05. Thus, when group type is ignored, pain tolerance of participants did not differ before and after DTT. Interaction effect was not significant either, F (1, 78) = 1.66, p >.05.

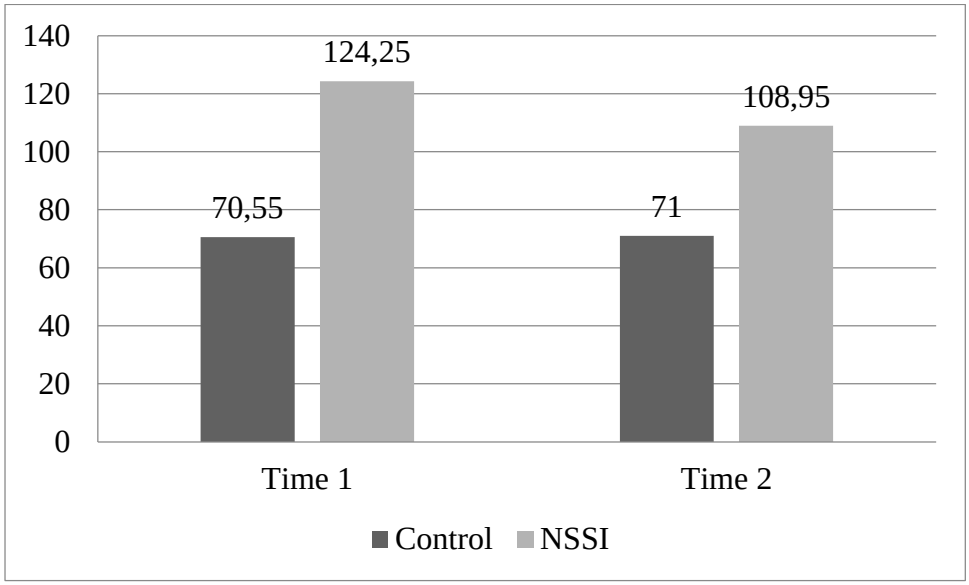


Figure 3.5. Mean Pain Tolerance Scores at Time-1 and Time-2

Furthermore, a 2 (group) x 2 (time) mixed-design ANOVA was conducted to test the effects of group type (NSSI vs. control) and time (before vs. after the DTT) on pain endurance (see Figure 3.6). As expected, there was a significant main effect of group on pain endurance, F (1, 78) = 5.31, p < .05, suggesting that when the time point is ignored, pain endurance was significantly higher in NSSI group (M = 90.95) as compared to the control group (M = 48.74). On the other hand, main effect of time on pain endurance was not significant, F (1, 78) = 0.12, p >.05, and suggested that when group type is ignored, time-1 and time-2 pain endurance scores did not differ. Interaction effect was not significant either, F (1, 78) = 1.35, p >.05.

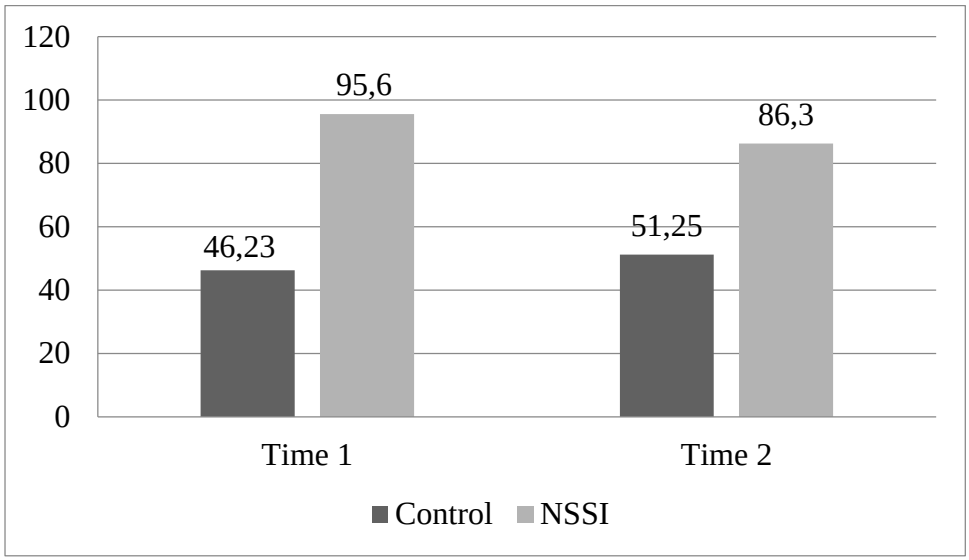


Figure 3.6. Mean Pain Endurance Scores at Time-1 and Time-2 cold pressor test.

As for pain intensity ratings, two separate 2 (group) x 2 (time) mixed-design ANOVAs were conducted to test the effects of group type (NSSI vs. control) and time (before vs. after the DTT) on pain intensity ratings of participants at threshold and tolerance. Main effect of time was not significant neither on threshold (F (1, 78) = 0.37) nor on tolerance pain intensity ratings (F (1, 77) = 0.03), $p > .05$. Main effect of group was also not significant on pain ratings at threshold (F (1, 78) = 0.15) or tolerance (F (1, 77) = 0.99), $p > .05$. Similarly, interaction effect of time and group was not significant on pain intensity ratings at threshold (F (1, 78) = 0.02) or tolerance (F (1, 77) = 0.03), $p > .05$.

1.2.7. Distress Tolerance Analyses

It was hypothesized that self-injurers would have less distress tolerance than non-injurers. Accordingly, we expected that self-injurers would pursue fewer cards in the Distress Tolerance Test (DTT). An independent t-test revealed that self-injurers (M = 34.40, SD = 16.10) did not differ from non-injurers (M = 37.50, SD = 16.83) in number of cards they persisted in DTT, $t(78) = 0.84$, $p > .05$.

We also hypothesized that DTT would induce psychological distress to all participants, but self-injurers would report more distress during this test as compared to non-injurers. To test this hypothesis, a 2 (group) x 2 (time) mixed-design ANOVA was conducted to test the effects of group type (NSSI vs. control) and time (before vs. at the 20th card of the DTT) on subjective units of distress (SUD) scores (see Figure 3.7). There was a significant main effect of time on SUD scores, F (1, 77) = 63.06, $p < .001$, suggesting that regardless of the group type, SUD scores were significantly higher at the 20th card of the DTT (M = 88.29) than before DTT (M = 55.65). Main effect of group type on SUD was also significant, F (1, 77) = 13.23, $p < .001$ and revealed that regardless of the time point, NSSI group reported significantly more distress (M = 85.09) than the control group (M = 58.51). There was also a significant interaction between group and time, F (1, 77) = 4.50, $p < .05$. As predicted, the effect of DTT was not same for self-injurers and non-injurers. Pairwise comparisons conducted with Bonferroni correction for the interaction effect showed that the NSSI group had significantly higher SUD scores than the control group at both before and at the 20th card of DTT. However, this discrepancy between the two groups was higher at the 20th card of DTT than before DTT; suggesting that DTT resulted in relatively more psychological distress in self-injurers than controls.

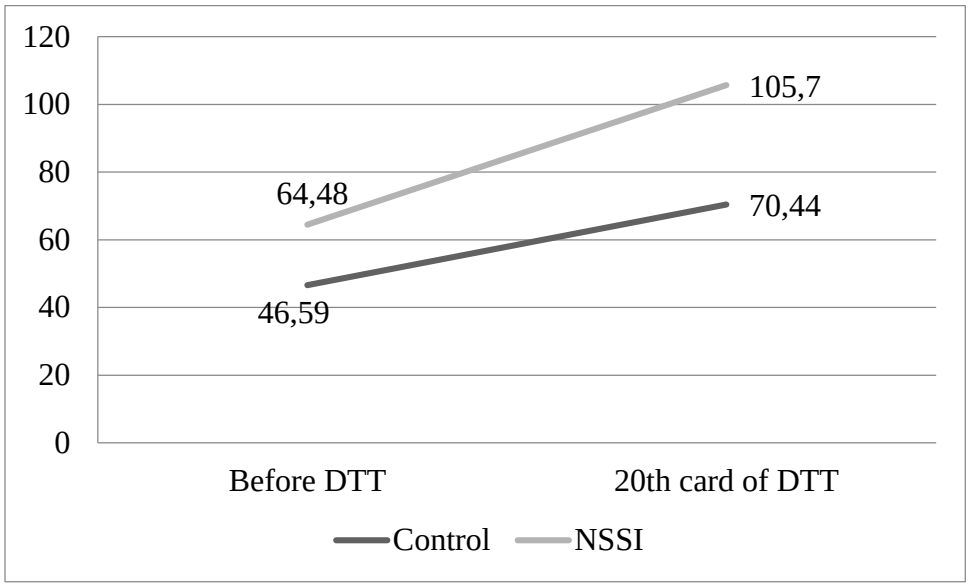


Figure 3.7. Interaction of time (before and at 20th card of the Distress Tolerance Test [DTT]) and group (NSSI vs. control) on subjective units of distress scores

We also expected that psychological distress as induced by the DTT would decrease after participants were exposed to experimental pain via CPT; and this decrease to be more dramatic in the NSSI group. To test this hypothesis, a 2 (group) x 2 (time) mixed-design analyses ANOVA was conducted to test the effects of group type (NSSI vs. control) and time (before vs. after CPT [Time 2]) on SUD scores (see Figure 3.8). There was a significant main effect of time on SUD scores, F (1, 77) = 8.70, p < .01, suggesting that regardless of the group type, SUD scores were significantly lower after pain induction (M = 65.99) than before this period (M = 78.86). Main effect of group type on SUD was also significant, F (1, 77) = 9.53, p <.01; and revealed that regardless of the time point, NSSI group reported significantly more distress (M = 85.09) than the control group (M = 58.51). The interaction effect was not significant, F (1, 77) = 8.70, p > .05.

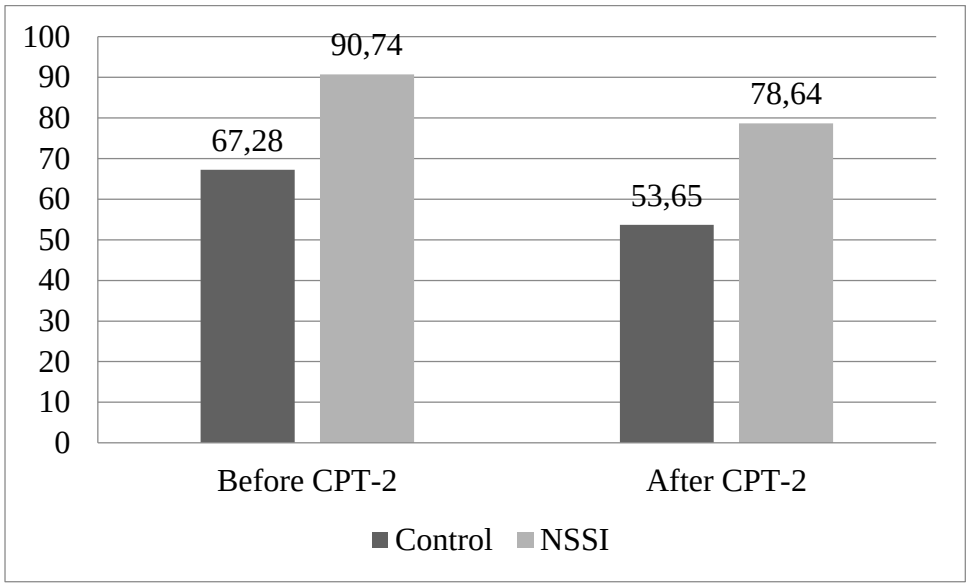


Figure 3.8. Mean Subjective Units of Distress Scores before and after pain induction via Cold Pressor Test (CPT) at Time-2.

3.2.8. Physiological Reactivity Analyses

Prior to the skin conductance analyses, baseline SCLs of NSSI and control groups were compared by an independent samples t-test to rule out any group differences due to differences at baseline. Groups did not differ on baseline SCL measurement at baseline, $t(74) = -0.87$, $p > .05$.

We expected that self-injurers would experience less physiological arousal during pain induction than non-injurers at both time-1 and time-2. Accordingly, two independent samples t-test was run to compare NSSI and control groups on mean SCL during CPT (Time 1) and CPT (Time 2). Groups did not differ on SCLs neither during CPT-1 ($t(73) = -1.23$) nor CPT-2 ($t(75) = -1.49$), $p > .05$.

It was hypothesized that self-injurers would experience more physiological arousal when distressed as compared to non-injurers. To test this hypothesis, we conducted two independent samples t-test to compare skin conductance means of NSSI and control groups during DTT until the 20th card and until the end of DTT. The

difference between SCLs of two groups was not significant neither until the 20th card ($t(75) = -1.02$) nor until the end of the test ($t(74) = -1.41$), $p > .05$.

Next, in order to investigate the effect of group and distress induction on physiological reactivity, we ran a 2 (group) x 2 (time) mixed-design analyses ANOVA to test the effects of group type (NSSI vs. control) and time (before vs. end of DTT) on SCL mean scores (see Figure 3.9). Main effect of time was significant, F (1, 72) = 21.48, $p < .001$; revealing that regardless of the group, participants had higher physiological reactivity after (M = 0.01) than before (M = -0.31) DTT. However, the main effect of group was not significant F (1, 72) = 0.24, $p > .05$, neither was the interaction, F (1, 72) = 0.67, $p > .05$.

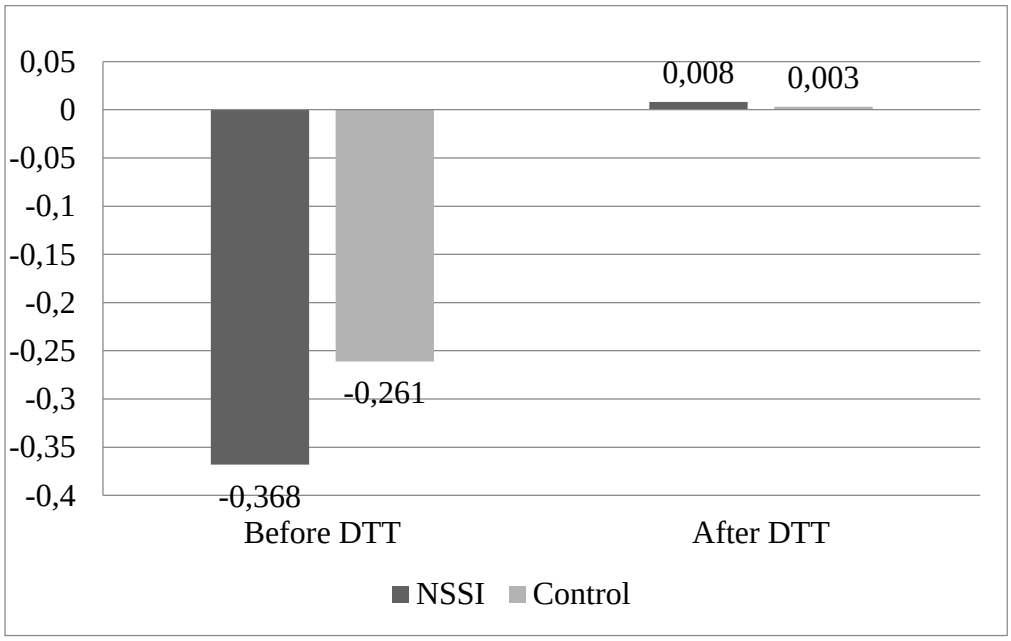


Figure 3.9. Mean Skin Conductance levels before and after distress induction via Distress Tolerance Test (DTT).

With the aim of exploring the effect of group and pain induction on physiological reactivity, we conducted a 2 (group) x 2 (time) mixed-design analyses ANOVA to test the effects of group type (NSSI vs. control) and time (before vs. after CPT-2) on SCL mean scores (see Figure 3.10). Main effect of time on SCL was significant, F (1, 72) = 78.91, $p < .001$; suggesting that regardless of the group, participants had decreased physiological reactivity after pain induction via CPT-2 (M = -0.67) as compared to before pain induction (M = -0.01). However, the main effect of group was not significant F (1, 72) = 0.04, $p > .05$, neither was the interaction between time and group, F (1, 72) = 0.54, $p > .05$.

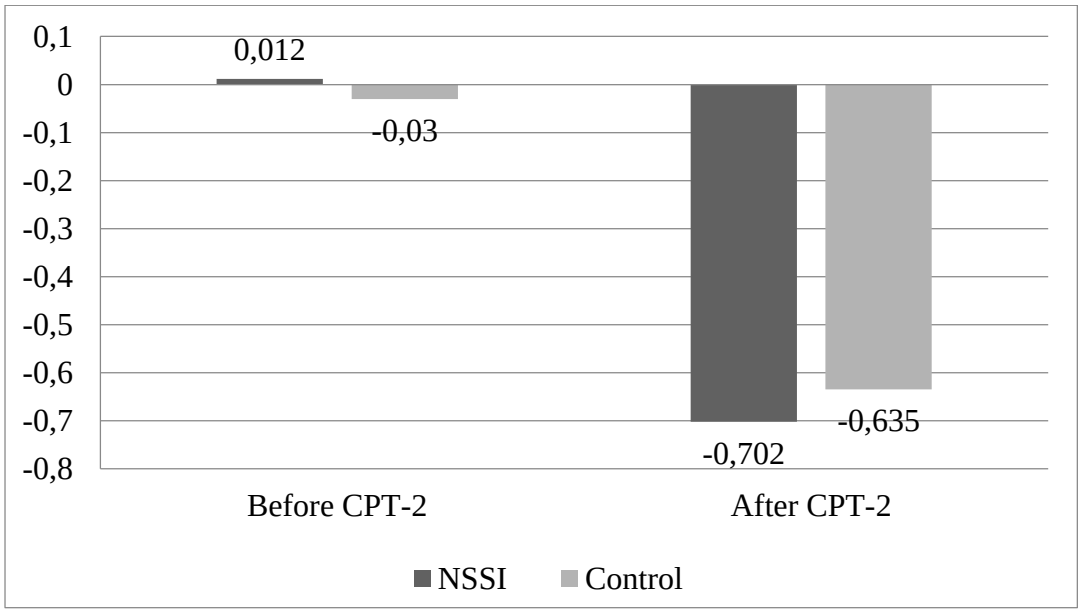


Figure 3.10. Mean Skin Conductance levels before and after pain induction via Cold Pressor Test (CPT)

3.3. Discussion of the Study 2

There were several purposes of the present study: First, we wanted to explore pain perception and the effects of a laboratory-based distress induction on pain-related variables in self-injurers and controls, and detect any group differences. Second, we wanted to examine potential differences in distress tolerance and physiological reactivity to distress in NSSI and control groups. Another purpose of the present study was to explore whether physiological reactivity and subjective levels of distress decreases after pain induction in NSSI and control groups. Furthermore, we also wanted to compare NSSI and control groups on measures of emotion dysregulation and self-compassion; and lastly, to examine characteristics and functions of NSSI, and their relationship with other study variables.

Given the previous findings on altered pain perception among self-injurers (e.g., Franklin et al., 2012; Gratz et al., 2011; Koenig et al., 2016; Weinberg & Klonsky, 2012), we expected that NSSI group would have increased pain threshold, pain tolerance, and pain endurance; and decreased pain intensity and physiological reactivity during painful stimuli. In line with our expectations, we found a significant main effect of group on pain tolerance and pain endurance scores regardless of the time points, which indicates that individuals with NSSI tolerated and endured pain for a longer time than control participants. This finding is consistent with previous work suggesting that individuals with a history of NSSI have greater pain endurance (e.g., Hooley et al., 2010) and tolerate pain for a longer time (e.g., Franklin et al., 2012) as compared to those with no such history. Contrary to our expectations, we did not find a significant main effect of group on pain threshold. A recent meta-analysis on pain perception in NSSI (Kirtley et al., 2016) reported that across all cross-sectional studies reviewed, those with a history of NSSI had higher pain thresholds as compared to controls. However, our finding is consistent with several studies in the literature (e.g., Mccoy et al., 2010; Schoenleber et al., 2014; St. Germain & Hooley, 2013) which also failed to find a difference between people with NSSI and controls in pain threshold.

Furthermore, we predicted that individuals with NSSI would rate pain as less intense as compared to controls based on previous work (e.g., Franklin et al., 2012; Russ et al., 1992). However, we did not find a difference between NSSI and control groups in pain ratings regardless of the time point. Although several studies reported self-injurers rate pain as less intense than non-injurers, our finding is consistent with a recent meta-analysis by Koenig and colleagues (2016), and Bresin and Gordon (2013) study, which also reported that pain intensity ratings did not differ in NSSI and control groups.

Building on the emotion regulation and self-punishment functions of NSSI, we predicted that inducing distress via failure on a card-sorting task would further increase pain threshold, endurance, and tolerance, and decrease pain intensity ratings in the NSSI group. However, we did not expect such an effect in the control group. As opposed to our predictions, the effect time (before vs. after distress induction) on pain tolerance, endurance and intensity ratings was not significant across groups; suggesting that distress induction via DTT did not have a significant effect on pain measures, with the exception of pain threshold. In other words, the only observable effect of time was on pain threshold: Participants' pain thresholds decreased after the distressing task, in other words, the main effect of time was significant in the opposite direction than we expected for both NSSI and control groups. Overall, it appears that distress induction, as employed by DTT (Nock & Mendes, 2008), did not have the expected effect on participants' pain perception, as measured by the CPT procedure. One reason for this finding might be the fact that pain was applied twice via CPT, which means that participants were asked to hold their hands in the cold water for a second time after a short waiting period. As a result, participants might have felt the pain more quickly at time-2 than their first exposure to cold water. Therefore, our pain perception measurement at time-2 may include a bias. Other possible reasons for this finding may be either our distress manipulation did not work, or did not have the desired effect in the present study; which will be further discussed in Chapter IV.

We found no evidence that self-injurers have low distress tolerance as compared to non-injurers as measured by a behavioral measure of distressing card-sorting task. In other words, both groups persisted comparable number of cards, as opposed to Nock and Mendes (2008), who found that self-injurers persisted less cards than non-injurers in DTT. Based on existing evidence suggesting increased physiological reactivity to distress among self-injurers (e.g., Nock & Mendes, 2008), we expected participants with NSSI to have elevated physiological reactivity during this task. In contrast to our predictions, self-injurers did not experience increased physiological reactivity during the distressing task as compared to non-injurers. Interestingly though, when self-reported subjective distress was taken into account, we found a significant group x time interaction; which supported our predictions. More specifically, the distressing task resulted in increased reports of subjective units of distress for both groups; however, for self-injurers, this task led to a sharper increase in subjective distress. Thus, according to the self-reported distress levels, the effect of the distressing task on mood was more dramatic for self-injurers. Moreover, there was also a significant group main effect, indicating that NSSI group had significantly higher SUD scores than the control group regardless of the time point. Overall, in terms of self-reported distress, self-injurers appear to be more emotionally reactive to distress as compared to non-injurers.

Based on previous studies that reported relief after the experience of pain, especially among self-injurers (e.g., Weinberg & Klonsky, 2012), we expected that pain induction would have an emotion regulatory effect in both groups, but would lead to greater decreases in subjective units of distress and physiological reactivity in individuals with NSSI. Findings supported our hypothesis that experience of pain would lead to a decrease in distress regardless of NSSI history. Interestingly, several previous studies too suggested that pain has an emotion regulatory effect not only for individuals with a history of NSSI, but also for individuals with no such history (e.g., Bresin & Gordon, 2013; Franklin et al., 2010; Franklin et al., 2012; Hiraoka, 2014).

However, because we did not have a no-pain condition, we cannot clearly see whether decreased distress is a function of pain induction or a function of passing time. Contrary to our prediction, although subjective units of distress scores decreased after pain induction among self-injurers as well as controls, this reduction was similar in both groups. Moreover, we did not find a main effect of neither group or time on physiological reactivity as measured by skin conductance levels.

As for characteristics of NSSI, the most commonly endorsed NSSI behavior was interfering with wound healing. Furthermore, age of onset for NSSI was 10.85 in the present sample, which is slightly younger than those reported in earlier studies. For example, Klonsky (2011) reported the age of onset in his as 16 and Ammerman and colleagues (2017) as 13.9. This finding suggests that for some self-injurers, NSSI begins even before adolescence. Confirming results from earlier studies, the majority of participants reported less than one hour of elapses between the time they had the urge to self-injure and to the point that they acted on the urge. This finding is similar to a study by Armey and collegaues (2011) who also reported less than one hour of preparation time before acting on the urge of NSSI. Given that participants with NSSI in the present study reported difficulties in controlling impulses, they might also have difficulty in controlling NSSI-related urges. The vast majority of self-injurers (92.5%) reported experiencing at least some pain during self-injury acts. Furthermore, our findings confirmed that NSSI is a highly private act. In the present sample, only a few (5%) self-injurers reported that they engage in NSSI in others' presence. Furthermore, in accordance with the expectations, self-injurers scored higher on general emotion dysregulation, as well as non-acceptance, strategies, goals, impulse, and clarity dimensions of emotion dysregulation. Lastly, consistent with our hypothesis, self-injurers in the present sample were less compassionate towards themselves as compared to non-injurers, and were less satisfied with their adopted coping skills.

Regarding the functions of NSSI, we found that most commonly endorsed functions of NSSI were affect regulation, marking distress and self-punishment functions.

This finding supports the previous findings that primary function of NSSI is regulating difficult affective states regulation hypothesis of NSSI (Nock et al., 2009; Klonsky, 2007). On the other hand, least commonly reported functions of NSSI were bonding peers and anti-suicide. Consistent with previous work (e.g., Lindholm, Bjärehed, & Lundh, 2011), intrapersonal functions were more commonly reported than interpersonal functions. We also investigated the relationship between NSSI functions and the remaining variables in the study. We found interesting associations between functions of NSSI and pain perception variables. For example, two of the most commonly endorsed functions of NSSI, self-punishment and affect regulation, were negatively associated with self-compassion scores. Furthermore, among interpersonal functions of NSSI, toughness and sensation seeking were associated with increased pain threshold, pain endurance and pain tolerance. This finding suggests that engaging in NSSI with the purpose of demonstrating toughness/strength or with the purpose of experiencing excitement/doing something extreme is related to decreased pain sensitivity. Furthermore, higher scores on autonomy, peer bonding, and revenge functions were positively related to pain threshold. In other words, engaging in NSSI to demonstrate autonomy/independence or to fit in with others or getting revenge against others was related to higher pain threshold. Lastly, as scores on engaging in NSSI with the purpose of getting revenge or caring for oneself increased, participants rated pain as less intense. Since the relationship between functions of NSSI and psychological variables is a neglected area of study, there is a need for future studies to replicate these findings.

An important finding in the present study was that those who started NSSI earlier had higher pain threshold as compared to those who started later. As far as we know, there is only one study in the literature that explored the relationship between pain perception and years of experience with NSSI (i.e., Hooley et al., 2010). Consistent with our findings, their study also reported that people who engaged in NSSI for a longer period of time exhibited increased pain threshold. This finding is consistent with the habituation hypothesis of NSSI (Joiner, 2005) which posits that

repetitive self-injurious acts contribute to decreased pain sensitivity among people with NSSI, possibly via habituation to endogenous opioid mechanisms (Kirtley et al., 2016).

Overall, the findings of the present study have added to the evidence that self-injurers have altered pain perception, and self-injury may function as a way to regulate distress. Furthermore, self-injurers appear to experience increased levels of subjective distress during stressful stimuli, although their physiological reactivity is comparable to the non-injurers. This study also showed that NSSI has an early onset in the present sample, and it may serve multiple functions.

CHAPTER IV

GENERAL DISCUSSION

The general objective of the present dissertation was to expand our understanding of non-suicidal self-injury (NSSI) and the processes related to NSSI by identifying its rate, characteristics and functions, and exploring the relationship between NSSI and a number of factors that have been highlighted in the empirical literature. More specifically, we conducted two studies to examine both psychological (i.e., emotion dysregulation, self-criticism, thought suppression, self-compassion, distress tolerance, and positive and negative affect) and psychophysiological (i.e., pain perception and physiological reactivity) factors in a sample of Turkish young adults. These two studies were designed in order to cover a wide range of associated variables by using multi-method measurement tools. Accordingly, the first study relied on self-report measures and investigated the frequency, methods, and gender differences in NSSI, and examined whether emotion dysregulation, self-criticism, thought suppression, self-compassion, and positive and negative affect distinguish self-injurers from their counterparts. Furthermore, we also explored the relative contribution of these variables to the presence of NSSI. Moreover, in Study 2 we employed a laboratory-based experimental design to explore pain perception differences between self-injurers and controls, and the effects of psychological distress on pain perception in both groups. In addition, we also explored whether young adults with a history of NSSI demonstrate less tolerance to distress and increased physiological reactivity during a distressing task. Based on the emotion regulation hypothesis of NSSI, we also investigated the effects of pain induction on self-reported distress and physiological reactivity in self-injurers and controls. Lastly, in Study 2, we identified functions of NSSI, and whether specific functions are associated with other study variables such as pain perception and emotion dysregulation.

In this section, an overview of findings from Study 1 and Study 2 will be provided, and discussed in the light of the relevant empirical evidence. Next, strengths and limitations of this dissertation will be addressed. Finally, clinical implications of the present findings, and directions for future studies will be stated.

4.1. Evaluation of Study Findings

4.1.1. Frequency and Characteristics of NSSI

The first aim of this dissertation was to assess the rate and characteristics of NSSI in a sample of university students. Our findings suggested that self-injury in the current sample was extremely common. After eliminating some of the commonly endorsed behaviors, we still found the rate of NSSI as 47.92%. As previously discussed, the rate of NSSI shows great variability across studies. Still, the rate reported by the present sample was generally higher than the rates reported by previous empirical studies. The high rate we found in the present study may have several reasons. First, the present sample was not randomly selected, and participants knew that it was a study on self-injury. It has been suggested that research participants often participate in research studies that are personally relevant to them (Peterson, 2001). In addition, participants were given extra course credits for their participation. Taken together, these factors might have contributed to the inflated rate of NSSI in the present study by attracting greater number of self-injurers. Moreover, assessment method may also have an effect on the high rate of NSSI. In their review of the existing literature, Muehlenkamp, Claes, Havertape, and Plener (2012) found that behavior checklists of NSSI yield much higher prevalence rates as compared to other measurement methods such as single-item measures. Yet, authors suggested that assessment method might contribute to the high variability in prevalence rates. Similarly, Swannell and colleagues (2014) suggested that measurement tool is an important contributor to the variability in NSSI frequency, with checklists leading to higher rates than yes or no questions. Authors argued that checklists provide rates that are more accurate because in free recall tasks such as yes or no questions,

participants require more cognitive effort and may not recall specific incidences of NSSI without any given cues. For example, in the previously-mentioned study by Toprak and colleagues (2011), NSSI was assessed by a general question that explored whether participants intentionally hurt themselves or not, followed by two questions on the presence of cutting and burning, specifically. Thus, participants might not have recalled engaging in other NSSI behaviors, or even did not know that certain behaviors were considered as NSSI; which might have contributed to the lower rate of NSSI in their study. Lastly, if we assume that all NSSI behaviors assessed in the present study were clinically valid and there is no bias in recruitment, NSSI may be more prevalent in the present sample as compared to previous samples which has yielded lower rates. One potential reason may be that the present sample was recruited from one of the highest ranked and most competitive universities of Turkey; which may contribute to students' self-criticism and self-punishment responses, and related NSSI. Yet, this finding should be replicated by future studies before reaching a conclusion.

Findings on characteristics of NSSI were generally consistent with the previous work. Our findings confirm that NSSI is a frequently performed, repetitive and impulsive behavior which usually begins during adolescence. Regarding NSSI methods, we found especially high rates for certain NSSI methods, namely interfering with wound healing, banging or hitting self, and biting. We believe that elevated rates in these behaviors warrant careful interpretation because these behaviors may not have clinical significance or may be misunderstood by participants. As previously stated, future research is needed to examine the validity of each NSSI behavior. Interestingly, cutting has been suggested as the most frequent method of NSSI in numerous studies (e.g., McCoy et al., 2010). However, the results of the current study show that cutting was not commonly endorsed by our screening sample. In Study 2, on the other hand, when behaviors that might not be clinically meaningful were excluded, cutting was the most frequent NSSI behavior.

Taken together, these findings suggest that NSSI is highly frequent especially among young people, and with its repetitive, multi-method and impulsive nature, it appears to be a major health concern that requires increased attention.

4.1.2. Gender Differences and NSSI

Regarding gender differences in NSSI, we found in the screening sample that the rate of females among self-injurers as greater than males; however, this gender difference disappeared once we applied a more conservative criterion of NSSI. Literature on gender differences in the prevalence of NSSI has yielded inconsistent results. In their recent meta-analysis on gender differences, Bresin and Schoenleber (2015) found that women were slightly more likely to engage in NSSI as compared to men. However, they noted that gender differences were larger in clinical samples than in college or community samples. Nonetheless, many studies reported no difference between the rates of NSSI among males and females (e.g., Klonsky, 2011; Klonsky et al., 2003). We believe that the variability in the conceptualization and measurement of NSSI plays an important role in the inconsistent results reported in the literature, given that prevalence estimates are very sensitive to the assessment method (Muehlenkamp et al., 2012). Furthermore, we did not find a significant difference between males and females in frequency of lifetime NSSI acts, supporting studies that reported comparable lifetime frequencies between males and females (e.g., Sornberger et al., 2012). Likewise, in terms of individual experience of pain during self-injury episodes, we found no evidence of gender difference. This finding is also consistent with previous research (e.g., Andover et al., 2010). Several previous studies found gender differences in methods of self-injury, with certain NSSI behaviors selected more frequently by members of a certain gender (e.g., Zoroğlu et al., 2003). Consistent with earlier work, we found that men and women differ in the endorsed methods of self-injury. Specifically, among self-injurers, we found that women reported engaging in burning, scratching, and sticking self with needles more frequently than men. Overall, the present

findings on gender suggested that men and women report comparable rates of NSSI, are likely to report similar lifetime frequency of NSSI, and describe similar subjective experiences of pain. However, there appears to be gender differences in selected methods of self-injury.

An important gap in the literature on gender and NSSI is that, there are a limited number of studies that explored differences between men and women on various characteristics of NSSI; and even less that identified potential gender differences in methods of self-injury (Sornberger et al., 2012). Moreover, we still do not know why individuals tend to select a specific method of self-injury, hence there is a need for further research that investigate the origins of gender differences in NSSI methods (Sornberger et al., 2012).

4.1.3. Associated Factors of NSSI

NSSI has been recognized as a dysfunctional coping strategy that generally serves an emotion regulation function (Sornberger et al., 2012). Not surprisingly, research has found that people with NSSI generally have difficulties in emotion dysregulation and its various dimensions (e.g., Franklin et al., 2013). Consistent with our predictions, in both studies, participants with a history of NSSI reported greater difficulty in regulating their emotions as compared to control participants. Furthermore, present findings suggest that self-injurers and controls also differ on dimensions of emotion dysregulation. In both studies, we found that self-injurers have difficulties in accepting their emotional responses, controlling their impulses, engaging in goal-directed behavior, reaching at emotional clarity, and accessing effective emotion regulation strategies. However, evidence on difficulty in emotional awareness dimension was not consistent; in the first study it was marginally significant whereas in the second study, it was not a significant factor distinguishing self-injurers from non-injurers.

Notably, previous studies suggested that awareness dimension of the DERS may not be a representative construct of emotion dysregulation, and may rather be removed (e.g., Bardeen, Fergus, & Orcutt, 2012). In support of its role in NSSI, emotion dysregulation was the strongest predictor of the presence of NSSI among a set of associated variables, even after controlling for positive and negative affectivity, and gender. Consistent with these findings, the most commonly endorsed function of NSSI in the present study was the affect regulation function; suggesting that emotion regulation deficits may contribute to the acts of NSSI to regulate emotions, which may partly explain why individuals engage in self-injury.

Consistent with the above findings, in both studies, people with NSSI in our sample were less satisfied with their coping skills as compared to their counterparts. This finding also supports previous research that individuals with a history of NSSI have difficulty with coping with distress, and engage in more maladaptive coping strategies (e.g., Williams & Hasking, 2010). Furthermore, self-injurers in the present study were also more likely to engage in thought suppression to avoid aversive thoughts. Previous work has found that people with NSSI are more likely to use avoidance-based coping strategies as compared to those who do not have a history of NSSI (Andover, Pepper, & Gibb, 2007). Similarly, the experiential avoidance model of NSSI (Chapman et al., 2006) posits that NSSI is maintained by its negative reinforcement function such that it serves as an escape strategy from aversive emotional experiences. Taken together, self-injurers appear to be suffering from a general difficulty in regulating aversive emotional states and try to suppress their unwanted thoughts, and they are indeed aware of this difficulty. However, further research is needed to assess whether NSSI is seen among people who initially have difficulties in coping, or among people with NSSI, the urge to engage in self-injury is so intense that other coping strategies are disregarded (Andover et al., 2006).

Based on the previous findings on self-injurers' increased emotional reactivity, and difficulty in coping with negative emotions and tolerating distress (e.g., Chapman et

al., 2006; Nock & Mendes, 2008), we employed a laboratory-based design to test the hypotheses that self-injurers experience increased subjective distress and physiological reactivity during a distressing task, and whether they quit this task earlier than controls. Our findings showed that individuals with NSSI indeed reported greater subjective units of distress as compared to the control group. However, two groups did not show any significant differences on behavioral measure of distress tolerance or on skin conductance levels during the distressing task. Evidence on altered physiological reactivity in NSSI is inconclusive (Groschwitz and Plener, 2012). Nevertheless, our findings are consistent with the study by Crowell and colleagues (2005) who did not find a group difference between self-injurer and non-injurer female adolescents in heart rate or skin conductance during a psychosocial stress protocol. However, our findings are in contrast with findings by Nock and Mendes (2008), who used a similar procedure and showed that participants with NSSI have increased skin conductance levels during the distressing card-sorting task and they quit the task sooner than the controls. One reason for this discrepancy may be the differences between the samples. Participants in Nock and Mendes (2008) study were younger (12 to 19 years) and they were recruited from the community, and 76.6% of their sample met criteria for at least one psychiatric disorder. On the other hand, our sample consisted of college students, the vast majority did not report any psychological diagnosis and none of our participants was receiving psychological treatment. Interestingly, even though objective measures did not reveal a significant difference between self-injurers and the control group, self-injurers reported that they experienced significantly more subjective distress. This divergence between self-report and objective measures exists in various previous studies. For example, Glenn, Blumenthal, Klonsky, and Hajcak (2011) found that although self-injurers scored higher on a self-report emotional reactivity scale, they did not differ from controls in startle modulation during and after viewing emotionally-valanced images. Likewise, in another study, although people with NSSI reported that they were more impulsive than controls, they performed similarly on laboratory-based behavioral measures of

impulsiveness (Janis & Nock, 2009). One possible reason behind this divergence in the present study may be that even though self-injurers and controls experienced similar amounts of emotional and physiological reactivity during distress, self-injurers may be more likely to catastrophize their experience of distress and perceive it as more threatening. However, there is a certain need for future research on self-injurers reactivity to distress and personal experiences when they face with various distressing stimuli.

Moreover, supporting previous findings (e.g., Nicolai et al., 2015), we also found that individuals with NSSI experienced more negative affect in general. However, self-injurers in the present study did not differ from non-injurers on positive affect. In addition, negative affectivity, but not positive affectivity, was a significant predictor of NSSI presence when the effect of gender was statistically controlled. In the light of this finding, we can say that self-injurers not only experience intense negative affect before the self-injury acts (e.g., Klonsky, 2009), they also are more prone to experiencing negative emotions in general. Previous reports stated that people with NSSI appeared to experience more frequent and intense negative emotions in their daily lives as compared to their counterparts (Klonsky & Muehlenkamp, 2007). Consistently, according to the Emotional Cascades Model (Selby, Anestis, & Joiner, 2008), negative emotion is one of the most important contributors to self-injury (Selby et al., 2012). Our finding regarding negative and positive affectivity is consistent with the study by Klonsky and colleagues (2003) which indicated that individuals with a history of NSSI had increased trait negative affect, even though they reported similar rates of positive affect as compared to individuals with no such history. Klonsky and colleagues (2003) argued that this finding may be related to the tripartite model of anxiety and depression (Clark & Watson, 1991). This model posits that both depression and anxiety are characterized by increased negative affect, but decreased positive affect is uniquely associated with depression. Since people with NSSI have increased negative, but not decreased positive affect, self-injurers may be more anxious rather than depressed (Klonsky et al., 2003).

Our findings suggested that self-criticism differentiated individuals with a history of NSSI from control participants. Furthermore, when the effect of gender and positive/negative affectivity was statistically controlled, self-criticism was the second strongest predictor of NSSI presence (after emotion dysregulation). Previous research also suggests that self-injurers are often highly critical of themselves, and express strong negative emotions towards themselves such as self-hate (e.g., Xavier et al., 2016) and self-disgust (e.g., Smith et al., 2014). As for origins of self-criticism, Glassman and colleagues (2007) stated that people who were extremely criticized and were abused either verbally and/or emotionally might have learned to be extremely critical towards themselves. The resulting self-critical cognitive style may contribute to the emergence of NSSI as a method of self-punishment and self-abuse (Glassman et al., 2007). In accordance with our findings on self-criticism, individuals with NSSI in both Study 1 and 2 were less compassionate towards themselves than their counterparts. Although studies on the relationship between NSSI and self-compassion are scarce, the previous work has suggested that self-compassion is negatively associated with NSSI and may have a protective role on its risk factors (Xavier et al., 2016). Our findings added to the existing evidence that self-compassion may be a protective factor against self-injury. Self-compassion is focused on an acceptance of one's failures, gaining a perspective of common humanity, and acceptance of emotional states (Neff, 2003a, 2003b), which we believe may buffer the effects of a critical cognitive style and negative affectivity among self-injurers. Still, there is a need for prospective research to identify whether self-compassion has a long term protective role of in the presence of NSSI.

4.1.4. Functions of NSSI

One of the objectives of this dissertation was to explore functions of NSSI. Our findings suggested that many people with NSSI engage in self-injury in order to regulate their aversive affective states. Majority of the self-injurers in Study 2 reported that they engaged in self-injury to calm down, reduce overwhelming

emotions, and release their emotional pressure. This finding supports the substantial empirical evidence that the primary function of NSSI is to regulate affective states (Klonsky, 2007). Interestingly, affect regulation function was not associated with pain perception measures in the present study. However, affect regulation function was negatively associated with self-compassion scores; suggesting that lower compassion towards oneself was related to increased use of NSSI with the purpose of regulating emotions. This finding is reasonable considering the negative relationship between self-compassion and avoidance-oriented coping strategies (e.g., Neff et al., 2005).

There have been several attempts in the literature to explain how NSSI regulates emotions. According to the Emotional Cascades Model (Selby et al., 2008; Selby & Joiner, 2009), the interaction between rumination and negative affect results in intensification of negative affective states (i.e., emotional cascades). Self-injury provides distraction from these highly aversive affective states and decreases negative affect. Apart from its distraction function, the similarity between neurobiological and neural mechanisms of emotional and physical pain (Eisenberger, 2012) may explain how NSSI alleviates negative affect. For example, feelings that result from social exclusion stimulate dACC and anterior insula; which are brain regions associated with distress that is related to physical pain (Einserberger, 2012). Thus, removal of physical pain may be beneficial to the offset of emotional pain as well (Franklin et al., 2013). Furthermore, research has shown that pain offset relief (i.e., feeling better following self-injury), but not the pain itself, may be a potential mechanism underlying the emotion regulation function of NSSI. According to this argument, pain provides a relief from the negative affect, and it also stimulates positive affect at the same time; thus providing both positive and negative reinforcement (Franklin et al., 2013; 2013a).

Following affect regulation, marking distress was the second most commonly endorsed function of NSSI. Marking distress function includes signifying the emotional pain by leaving a physical sign. Although it has not been examined by

previous studies in detail, this function was positively associated with the affect regulation function in the present study; and appears to be linked to self-injurers' difficulty in understanding and containing difficult emotions. Gratz (2003) stated that NSSI is a way of externalizing emotional pain through actual physical sensation. Considering that people who engage in NSSI have difficulties in verbally describing and creating a narrative of painful experiences (Babiker & Arnold, 1997), for some individuals NSSI may function as a way to make meaning of difficult emotions through bodily sensations. Moreover, consistent with previous studies, people with NSSI reported self-punishment as one of the most commonly endorsed functions of self-injury. According to Klonsky (2007), self-punishment is the most empirically supported function of NSSI after the affect regulation function. Majority of the self-injurers in the present study stated that they engaged in self-injury with the aim of self-punishment as a result of dissatisfaction with themselves and self-directed anger. Given the finding that our NSSI sample engaged in self-criticism more than their counterparts and were less compassionate towards themselves, using NSSI to punish themselves appears to be a part of their self-abusive and critical cognitive style.

In the present study, we also investigated the relationship between NSSI functions and psychological variables; an area that captured limited research attention. We found that those who first engaged in NSSI before age of 12 reported higher scores on *bonding with peers* function as compared to those who engaged in NSSI older than 12. Considering that adolescence is a period during which peer relationships become central to adolescents' identity and well-being (as cited in Buck & Dix, 2012), young adults who started self-injury in early adolescence might have reported NSSI as a method of social inclusion and belongingness. Still, we need more studies to investigate NSSI functions in different age groups and how these functions are shaped over time. Moreover, total scores on intrapersonal functions of NSSI were positively associated with pain threshold and negatively associated with self-compassion scores.

This finding suggests that the use of NSSI with intrapersonal motives such as affect regulation and self-punishment was related to decreased pain sensitivity and self-compassion among self-injurers. Furthermore, our results also suggested that higher total scores on interpersonal functions were associated with decreased pain sensitivity, as measured by higher pain threshold, pain endurance, and pain tolerance, and lower pain intensity ratings at tolerance. Previous research has heavily focused on intrapersonal functions of NSSI whereas interpersonal functions appear to be neglected by the majority of studies (Muehlenkamp et al., 2013). These preliminary findings suggest that although less frequently endorsed than intrapersonal functions, interpersonal functions may have an important role in pain perception among self-injurers, which needs to be further investigated.

4.1.5. NSSI and Pain Perception

One of the purposes of the present study was to investigate pain perception differences between self-injurers and non-injurers. In Study 2, we found evidence that participants with a history of NSSI tolerate pain for a longer time as compared to those without such history; although they first feel the pain around the same time and they rate pain at a comparable level in intensity. In other words, pain threshold and pain intensity ratings of self-injurers and non-injurers were comparable; however, self-injurers had increased tolerance to pain than non-injurers. Part of these findings are consistent with previous work indicating that self-injurers have increased endurance and tolerance to pain (Kirtley et al., 2016; Koenig et al., 2016).

As for origins of pain perception differences, it is not yet clear whether altered pain perception in people with NSSI results from repeated exposure to painful stimuli or it is more of a dispositional trait (Smith, 2014). One possibility is that individuals who already have lower sensitivity to pain engage in NSSI because it is less aversive to them as compared to individuals with higher sensitivity (Nock, 2010).

Alternatively, engagement in NSSI may lead to gradual desensitization to pain over time, and to an increase in the response of the opposite emotional valence such as relief (Joiner et al., 2012). According to the opponent processes theory (Solomon, 1980), NSSI is aversive for everyone in the beginning; however, as people have repeated experience with NSSI, the primary process (i.e., pain) starts to decline whereas the opponent process (i.e., reinforcing qualities of pain) starts to increase (Franklin et al., 2010). Therefore, with repeated exposure, pain tolerance increases and NSSI acquires more positive affective qualities over time (Joiner, 2005; as cited in Franklin et al., 2010). This argument is in accordance with our finding that those with an earlier onset of NSSI have increased pain threshold as compared to those with a later onset. In another potential explanation, Franklin and colleagues (2012) proposed that differences in affect dysregulation, rather than a history of NSSI, may explain pain processing differences between self-injurers and non-injurers; since emotion dysregulation is also found to be related to abnormal pain perception. They suggested that dysregulation of emotions may contribute to increased endurance to pain because self-injurers may believe that they deserve pain and self-punishment (Franklin et al., 2012). However, in the present study emotion dysregulation was not associated with pain perception variables. Another factor that may explain the abnormal pain perception in self-injurers is self-criticism and related self-punishment (Hamza et al., 2014). Hooley and colleagues (2010) named this phenomenon as the "defective self-hypothesis" and stated that individuals who believed that they are worthless and deserve punishment are likely to have higher endurance to pain. However, studies that test hypotheses regarding the mechanisms underlying higher pain threshold and pain tolerance in NSSI is limited, and there is a need for future research to identify whether altered pain perception in NSSI is a cause or consequence (Kirtley et al., 2016).

A contradicting finding in the present study was that although majority of the existing reports suggested that self-injurers have increased pain threshold (e.g., Glenn et al., 2014), we did not find pain threshold differences between groups.

One of the factors behind this discrepancy might be the characteristics of our NSSI sample. For example, our NSSI sample was heterogeneous in terms of their NSSI severity and time passed since the last time they engaged in NSSI, which might have an effect on pain perception measurements. Ludäscher and colleagues (2009) suggested that pain threshold is related to NSSI recency; and if NSSI is not recent, self-injurers may not differ from non-injurers on behavioral measures of pain threshold. They found that self-injurers with borderline personality disorder who stopped self-injury scored lower on pain threshold than those who continue self-injury; indicating that pain perception may be normalized after termination of NSSI. Given that some of our participants with NSSI did not engage in NSSI during the past year, their pain threshold might be comparable to the control participants. As for pain intensity ratings, self-injurers in our sample rated pain at a comparable intensity as non-injurers, a finding that contrasts our hypothesis, but indeed similar to the study by Bresin and Gordon (2013). A number of studies, which found pain intensity rating differences between self-injurers and non-injurers, had clinical samples of self-injurers (e.g., Kemperman et al., 1997; Russ, Campbell, Kakuma, Harrison, & Zanine, 1999). Still, some studies found differences in pain intensity among university students as well (e.g., McCoy et al., 2010). Bresin and Gordon (2013) suggested that pain intensity ratings might be influenced by whether self-injurers report pain during NSSI. The majority of self-injurers in our sample did report pain during NSSI acts, which may contribute to our failure to find such difference.

Since self-injurers were found to be less sensitive to painful stimuli in previous work, we also predicted that they would have decreased physiological reactivity during painful stimulation as compared to non-injurers. However, this prediction was not supported by the current findings. More specifically, in both pain inductions, self-injurers had comparable skin conductance levels as compared to non-injurers. One of the potential explanations for this finding may be that we used *mean* skin conductance levels, which is not able to capture group differences in

fluctuations of skin conductance during time because it takes mean scores and ignores fluctuations such as sudden peaks. Another potential explanation is that among various measurements of physiological reactivity, such as heart rate and blood pressure, skin conductance may not be sensitive to physiological reactions to painful stimuli. In a previous study (Smith, 2014), self-injurers demonstrated higher levels of blood pressure, t-wave amplitude and interbeat interval; but similar skin conductance levels, as compared to healthy controls in response to pain. Similarly, in a healthy community population (Loggia, Juneau, & Bushnell, 2011), heart rate, rather than skin conductance, was a better indicator of group differences in pain ratings at different intensities of pain. Therefore, it is quite possible that other physiological measurements will be more likely to capture differences between people with NSSI and controls in physiological reactivity to pain.

Based on previous research (e.g., Bohus et al., 2000), we expected that pain sensitivity of self-injurers would further be reduced as a result of distress. However, our results did not support this prediction. More specifically, distress manipulation did not have an effect on pain tolerance, pain endurance, and pain intensity ratings. An unpredicted finding was that pain threshold decreased in the second pain induction in both NSSI and control groups. As discussed previously, we believe that one of the most important factors in these unexpected findings was that participants were exposed to the same painful stimuli twice after a very brief time interval. Furthermore, the nature of the distressing task and characteristics of our sample might also have contributed to these unexpected findings. Our sample consisted of university students who were recruited from Middle East Technical University, one of the highest ranked university in Turkey, and none of our participants were under psychological treatment, unlike the original study that used DTT (Nock & Mendes, 2008) in an adolescent sample of which the majority met criteria for a psychiatric disorder. We noticed that although being distressed, our participants insisted on solving the logic behind the card-sorting task, and some reported that they want to go on until the last card to see how the test ends.

Furthermore, the majority of the sample consisted of psychology students who might be familiar with experimental manipulation; which also may have contributed to our insignificant findings. Therefore, we suggest that if future studies are to use DTT, they may benefit from choosing a community or clinical sample. Lastly, DTT may not be able to trigger negative internal experiences similar to the daily experiences of self-injurers before they engage in self-injury. Although DTT appears to have induced distress, we believe that it may not be as intense or personally-relevant to real life experiences of self-injurers in our sample. In an ecological momentary assessment study, Nock and colleagues (2009) reported that their participants were feeling rejected, angry, and hateful before the NSSI acts, but not sad or worthless. Moreover, Janis and Nock (2009) stated that since self-injurers engage in NSSI under extreme emotional distress, behavioral laboratory assessments may fail to demonstrate self-injurers' impulsive urge to self-injure. They suggest that certain performance-based tasks may not be able to capture differences between people with and without NSSI, and different tasks may be more successful at doing so. Therefore, future studies may use different distress-inducing tasks like personalized scripts to trigger more ecologically valid internal experiences among self-injurers in the laboratory and better detect group differences.

Previous studies suggested that people with NSSI experience an increase in negative affect prior to self-injury acts and a decrease in negative affect after self-injury (e.g., Armey et al., 2011; Claes et al., 2010). Based on the emotion regulation hypothesis of NSSI, we utilized a distressing card-sorting test followed by pain induction, and explored the effects of pain induction on subjective distress as reported by participants, and physiological reactivity. Supporting our hypothesis, subjective levels of distress diminished after pain induction in both self-injurers and controls; in other words, self-reported distress scores were significantly lower after pain induction regardless of the group. Therefore, similar to previous findings (e.g., Bresin & Gordon, 2013; Franklin et al., 2010), experience of painful stimuli decreased distress regardless of the NSSI history.

However, contrary to our expectations, this decrease was not sharper in the NSSI group. Rather, before and after the pain induction, NSSI group reported significantly more distress than controls. Furthermore, as previously discussed, since we did not have a no-pain condition (e.g., warm stimulation), there is a need for further evidence that pain, but not the passage of time, contributes to the decreased distress.

4.2. Contributions and Importance of the Study

NSSI is a complex behavior that has multiple determinants; thus, it does not seem possible to understand it through examining any single pathway (Glassman et al., 2007). Starting from this point of view, the present study was an attempt to capture the complexity of NSSI by using a multi-method and integrative approach. Towards this aim, we employed both self-report and objective measures, and tried to integrate a wide range of factors that may be associated with self-injury.

We believe that the present study addressed certain gaps in the NSSI literature. First, this dissertation study included a laboratory-based design that aimed to mimic real life experiences of people with a history of self-injury. Although there is an increase in the number of studies that attempt to understand NSSI, existing findings predominantly rely on retrospective self-report measures. By employing a laboratory-based assessment, we were able to test several hypotheses on NSSI simultaneously, and gather more objective data as compared to self-report measures. Furthermore, an important gap in the NSSI literature is that majority of previous studies employ clinical samples. For example, pain perception differences were found between self-injurers and non-injurers; however, vast majority of studies has recruited either inpatient samples or individuals with borderline personality disorder (McCoy et al., 2010). The present study address this gap by employing a non-clinical a college sample which we believe is a step to expand findings from clinical populations to community samples. Moreover, the current study has contributed to the limited previous evidence on various areas in the NSSI literature.

For example, it was one of the few studies that investigated the relationship between NSSI and self-compassion, physiological reactivity to pain among self-injurers, as well as one of the first studies that investigated the association of functions of NSSI with other NSSI-related variables and associated factors. Lastly, it was one of the limited number of studies that explored the relationship between pain perception and psychological variables among self-injurers.

Unfortunately, NSSI is a highly neglected area of empirical research in Turkey. Majority of the existing studies with Turkish samples suffer from important methodological limitations, such as assessment of NSSI by single-item questions or unstandardized measures. Furthermore, the relationship between NSSI and a variety of its correlates has yet to be studied. Another important limitation of NSSI research in Turkey is that existing findings completely rely on retrospective and self-report measures, and to the best of our knowledge, there are neither any findings based on objective measurements nor any laboratory studies. Based on the scarcity of research on NSSI, the present study was the first to use objective measures (e.g., skin conductance levels) to assess associated factors of NSSI, and was the first laboratory study on NSSI in Turkey. Furthermore, the present study was first in Turkey to examine various correlates of NSSI; namely, emotion dysregulation, self-criticism, self-compassion, pain perception, negative/positive affect, and thought suppression. Taken together, not only does this study expand the examination of NSSI to a laboratory setting, but also attempts to understand the characteristics, functions, and psychological and psychophysiological correlates of NSSI in a Turkish non-clinical population. Therefore, we believe that the present work has important contributions to the NSSI literature in Turkey, and hope that it inspires researchers in conducting research on this highly neglected area.

4.3. Clinical Implications

Findings of the present dissertation have several implications for clinicians working in the field. Our findings supported the evidence that NSSI is a very common condition which typically begins in adolescence and even younger. Therefore, clinicians working with children and adolescents are recommended to be aware of this trend while working with this population (Heath, Schaub, Holly, & Nixon, 2008). Furthermore, our findings confirmed that NSSI is a repetitive behavior that may continue well into the adulthood. This finding implies that NSSI may become chronic over time if not treated; which highlights the need for the development of prevention and intervention programs that target self-injury among youth. The rate of NSSI in the present study was similar among males and females; however, there appears to be gender differences in method of choice for NSSI. Andover and colleagues (2010) posited that differences in method have implications for the assessment of NSSI. They suggested that focusing on only a few methods and disregarding other possible alternative NSSI behaviors may lead clinicians to miss NSSI diagnosis. Accordingly, clinicians should consider potential gender differences, such as differences in method of choice and body locations, when assessing the presence and severity of self-injury among males and females.

Examining the risk factors and functions of self-injury has implications for prevention of NSSI and development of clinical interventions (Gratz, 2003). Guerry and Prinstein (2010) stated that understanding both proximal and distal factors in NSSI are important. Examining distal factors which precede the act of NSSI helps us identify warning signs of NSSI and develop treatments to prevent acting on NSSI impulses. Examination of distal factors, on the other hand, illuminates the developmental pathways to self-injury and characteristics that increase the risk of future NSSI, which have implications for preventing NSSI. Our findings suggested that individuals with NSSI have deficits in emotion regulation skills, engage in avoidance behaviors such as suppressing unwanted thoughts, and are less satisfied with their adopted coping strategies.

Furthermore, combined with prior evidence, self-injurers appear to be more self-critical, have increased negative affectivity, and are less compassionate towards themselves as compared to their counterparts. These findings hold implications for prevention and treatment of self-injury. Furthermore, they also suggest that there are multiple areas which psychological prevention and intervention programs for self-injury may target.

There is consistent evidence that self-injurers' primary motivation for self-injury is regulating aversive emotional states. Therefore, gaining more functional and healthier emotion regulation strategies should be one of the most important aims of NSSI interventions. This suggestion is supported by empirical evidence indicating that therapies that include acquisition of cognitive and emotion regulation skills result in reduction of NSSI behavior (as cited in Muehlenkamp et al., 2013). However, because self-injurers are in struggle with their emotions and try to avoid rather than to accept them, Gratz (2007) argued that treatments which focus on the control of emotions may not be helpful to individuals with NSSI; rather, treatments should include components of acceptance and adaptive ways of responding to emotions. Two treatments suggested by Gratz (2007) that fulfill this criterion were dialectical behavior therapy (Linehan, 1993) and an acceptance-based emotion regulation group therapy (Gratz & Gunderson, 2006).

Given that self-injurers engage in avoidance of negative emotional states, Howe-Martin and colleagues (2012) suggested that interventions that include mindfulness and acceptance components may be effective in the treatment of NSSI. Moreover, since young people with NSSI are more likely to criticize and are less compassionate towards themselves, increasing self-compassion and self-acceptance may be important areas of intervention. Van Vliet and Kalnins (2011) suggested that people who engage in self-injury may highly benefit from self-compassion-based interventions, and self-compassion may also play an important role in recovery from NSSI.

For example, compassion-focused therapy (Gilbert, 2010) which is a type of cognitive behavioral therapy with a special focus on warmth, acceptance, and compassion towards oneself (Van Vliet & Kalnins, 2011) may be useful while working with young people who self-injure. Similarly, a recently developed mindful self-compassion program for adolescents (Bluth, Gaylord, Campo, Mullarkey, & Hobbs, 2016) which includes various components of self-compassion has been shown to be helpful in decreasing negative affect, perceived stress, depressive and anxiety symptoms among adolescents, and may also be helpful in the treatment of NSSI. Unfortunately, there is a lack of evidence for the efficacy of any of the above treatments in the prevention or treatment of self-injury and, there is a certain need for randomized controlled trials examining the treatment effects (Brausch & Girresch, 2012). In the wider context, associated factors of NSSI that have been supported in the present study may also serve in the prevention of NSSI and other self-harm behaviors in general. To illustrate, effective coping strategies and developing a compassionate view of self may be integrated in educational programs in schools, and adolescents may benefit from these skills long before they seek treatment.

The current study provided empirical evidence for the altered pain perception among self-injurers. This finding is especially important in the context of the relationship between self-injury and suicidal behavior. According to Joiner's (2005) theory of suicidal behavior, repeated experience with self-harming behaviors facilitates one's ability to induce lethal harm in the future. Joiner (2005) proposes that repeated exposure to painful stimuli contributes to higher pain tolerance and fearlessness from pain in the long term; thus increases one's capability of suicide. Given the increased pain tolerance in our NSSI sample in addition to the previous empirical findings that self-injury is a risk factor for future suicide (e.g., Cooper et al., 2005; Hawton et al., 2003), early suicide prevention gains importance among self-injuring clients.

Therefore, clinicians are suggested to be aware of the accumulating risk for suicidal behavior among their self-injuring clients over time, watch for early signs of suicidal behavior such as suicidal ideation, and engage in early suicide intervention when necessary.

Of great importance, the majority of the self-injurers in the present study reported that they would like to stop self-injury; yet almost none of them were receiving any treatment for their problems. This lack of professional help-seeking among self-injurers may have several reasons. One possible reason may be the stigmatization of NSSI in the general population. Traditionally NSSI has been considered negatively in society, even stigmatized as being manipulative and as an act of attention seeking (Tantam & Huband, 2008). This negative attitude towards NSSI also exists among professionals such that many self-injurers report negative responses from mental health providers and emergency staff (NICE, 2012). Stigmas related to NSSI may result from a lack of understanding of this condition (NICE, 2012). To overcome this problem, it is important for clinicians to increase their efforts to deepen their knowledge on the nature of NSSI and take a non-judgmental stance while approaching to people who engage in self-injury. Furthermore, we should also work towards raising the awareness that self-injury is a highly common and serious health problem in our society, and just as any other medical or psychological conditions, it should not be discriminated against. Moreover, we believe that future research is needed to investigate the factors that contribute to the lack of treatment-seeking among self-injurers, so that we can improve our health services accordingly. Research also may explore reasons behind stigmatization of NSSI and guide us in fighting against the negative view of NSSI in the society and among health-care workers.

4.3.1. Psychopathological Implications of Self-Injurious Behaviors

In the present dissertation, NSSI has been studied as a separate behavior. This is consistent with the recent empirical literature, which has been built on the ongoing attempts to include NSSI in DSM as a separate psychological disorder. However, as previously stated, NSSI accompanies a wide range of psychological conditions, and it rarely exists by itself (e.g., Jacobson & Gould, 2007; Nock et al., 2006). Notably, chronic self-injurious behaviors are often seen part of serious personality disorders such as borderline personality disorder and histrionic personality disorder, and need long-term psychological treatment (Kernberg, 2004). Furthermore, self-injury often exists with many other self-defeating acts such as drug abuse and suicidal behavior (e.g., Hilt et al., 2008). Therefore, in clinical practice, we find it extremely important to consider self-injurious behaviors within their wider psychopathological context.

To name some of the conditions in which self-injury is often present, masochistic personality organization is probably one of first conditions that come into mind. This is due to the fact that masochism is associated with seeking physical or psychological pain. For many people with this personality type, the only time their caregiver made an emotional investment in them is during the times they were being punished (McWilliams, 1994). As a result, they learn from experience that pain is a necessary part of attachment and love relationships. Many of these patients have a tendency to blame others for their suffering, and depict themselves as pure victims; but also reject help offers from others (Keinberg, 1988). However, it is important to note that people with masochistic personality do not *enjoy* pain; rather, their self-destructive acts usually serve the purpose of avoiding other more painful results such as abondenment, or sacrifying themselves for greater aims (McWilliams, 1994).

Depressive personality is another condition inwhich NSSI may be present. Freud (1917) posited that people with depressive personality organization direct negative emotions away from others; instead, their aggression is directed toward themselves. Moreover, Freud (1917) argued that these people had been abondened by their loved

object, and rather than turning to another figure, they identified with the lost one. Of great importance, their hate and sadism to the loved object is turned inward (Freud, 1917). This argument is consistent with the intense experience of guilt, rather than anger, among depressed people (McWilliams, 1994). Individuals with a depressive personality structure may come from different family backgrounds; but oftentimes they blame themselves for being rejected and being emotionally abused, and believe that they deserved what has happened (McWilliams, 1994). Among depressive patients, self-injury may reflect this pattern of self-blame and self-hate; and function as a self-punishment mechanism for one's mistakes and shortcomings.

Another personality structure that we may see self-destructive behaviors is histrionic personality. People with a histrionic personality pattern experience high sensitivity to emotional stimuli, and may feel helpless in understanding and coping with difficult emotional experiences (McWilliams, 1994). These patients frequently use dissociative coping mechanisms, including self-destructive behaviors such as binge eating (McWilliams, 1994). Furthermore, self-injury among these patients may reflect an unconscious wish to re-gain control over situations by stimulating guilt in others (Kernberg, 1988). Menninger (1938) stated that people with histrionic personality have surprisingly low sensitivity to pain, and they may even insist on having multiple painful surgical operations to alleviate bodily symptoms; which only results in short time symptom relief. He adds that, in this way, the histrionic person "*avoid facing something else which he fears more than he does surgery*" (pg. 303). Self-destructive behaviors, including self-injury, may provide secondary gain to people with histrionic personality, and alleviate their anxiety as well as providing them with the attention and care of others. Histrionic patients, in that sense, are more driven by psychological motives and less by the physical unpleasantness of their self-punishing acts (Menninger, 1938).

Based on the above examples, while working with people who self-injure, we recommend clinicians to assess whether NSSI is part of a broader self-destructive pattern in personality organization (Kernberg, 2004).

We believe that considering NSSI in the context of other existing psychopathology may help clinicians to have a deeper understanding of motivations behind self-injury, as well as developmental pathways that initiated it. Furthermore, this viewpoint may assist clinicians in conceptualizing client problems integratively, and developing empathy for their self-injuring clients without stigmatizing them because of their self-defeating acts.

4.4. Limitations and Future Suggestions

The findings of the present study warrant some limitations. First of all, the sample of the present study were college students who were drawn from a single university in Ankara, which may present problems regarding the generalizability of results to the general young adult population. In his meta-analysis on the use of college samples in social-science research, Peterson (2001) found that responses driven from college populations were consistently more homogenous; therefore, it was suggested that research findings based on college students to be replicated with non-student samples before jumping to general conclusions. Using community samples is especially important since only a small portion of the general population attend college in Turkey. Thus, future studies are recommended to use a random sample of young adults recruited from the community to increase generalizability. Furthermore, the present study was cross-sectional; therefore, our findings do not reflect cause and effect relationships between NSSI and various associated factors. Longitudinal research is extremely scarce in NSSI literature, and future studies are strongly encouraged to address this important gap.

Another limitation of the present study was the use of a single-method in the assessment of NSSI. We observed that some participants who reported NSSI wrote down in the additional notes section of the questionnaire that they did not engage in those behaviors to hurt themselves, which suggests that some participants might not have understood the concept of NSSI appropriately.

Similarly, Ross and Heath (2002) reported that the frequency of NSSI in their study as measured by a screening questionnaire decreased following an interview they conducted to probe participants' responses. Apparently, in their study, many behaviors that were categorized as self-injury by participants in the screening measure did not meet the actual criteria for NSSI. Furthermore, in spite of our attempts to ensure confidentiality, considering that the researcher was the graduate student at the same college, it is possible that some participants were not comfortable in answering questions on NSSI. Nock and Cha (2009) suggested that self-report measures on NSSI may be affected by social desirability bias. Thus, in order to increase reliability of NSSI measures, future studies should employ multiple assessment methods of NSSI. Especially studies may benefit from more objective and direct assessments such as physiological responses to NSSI-related stimuli. A general limitation in NSSI literature is that numerous studies still use non-validated or single-item measures to assess NSSI. For researchers, it is important to use reliable and valid measures that include not just one or two general questions, but measures that cover various characteristics of NSSI, such as its methods and functions.

Next, conceptualization and measurement of NSSI show great variability across empirical studies. In the present study, we developed our own inclusion criteria for NSSI with an attempt to include clinically meaningful self-injurious behaviors. However, different conceptualization and measurement of NSSI contributes to the inconsistent findings in the literature and seem to slow down the process of understanding NSSI. In addition, different operational definitions of NSSI across studies make cross-study comparisons more difficult (Heath et al., 2008). Given that NSSI has been included into DSM-V as a condition that requires further study, we recommend future studies to use NSSI criteria as listed in the DSM while defining NSSI and recruiting participants into studies in order to develop a common operationalization of NSSI.

A limitation in the laboratory procedure of the present study was that counterbalancing method was not applied for the participants' hands in the repeated application of cold pressor test, since the ongoing measurement of skin conductance through electrodes placed in participants' left hands. Therefore, exposure to painful stimuli twice with the same hand may have affected our pain perception measurements at time-2. We recommend future studies to counterbalance participants' hands if they do not employ measurement of skin conductance, or if they do, to include another method of pain induction and counterbalance the order of pain induction procedures. A description of such procedure can be seen in the study by Gratz and colleagues (2011).

Given that rates of NSSI peaks during adolescence and young adulthood, and appear to be much lower during adulthood (Swannell et al., 2014), an important area for future research may be the cessation of self-injury. A recent study with college students reported that NSSI cessation was linked to acquisition of emotion regulation abilities, increased self-awareness, and connectedness to others (Whitlock, Prussien, & Pietrusza, 2015). Research in this area is limited, and if receives further attention, may provide us with insight on the factors that yield people to stop self-injury so that we can develop programs for youth accordingly.

4.5. Conclusion

Gaining insight into self-injury is important given its high prevalence among young people, and its consistent link to a variety of mental health problems including suicide. Our findings suggested that NSSI was very common in the present sample of young adults, in addition to being repetitive and having a very early age of onset. Furthermore, self-injurers in our sample commonly endorsed in NSSI mostly to regulate their difficult emotions. Although less commonly reported, self-injury appeared to have some interpersonal functions as well. Our results showed that self-injurers are likely to have difficulty in coping with aversive affective states,

experience more negative affect in their daily lives, report increased subjective distress during a difficult task, and they are less satisfied with their adopted coping skills as compared to non-injurers. Furthermore, self-injurers appear to be highly self-critical and less compassionate towards themselves. Moreover, there also appears to be differences in how people with NSSI perceive painful stimuli. More specifically, self-injurers in our sample endured and tolerated pain for a longer time than their counterparts.

Overall, the results of the present dissertation highlighted that NSSI is a complex behavior that appears to be initiated and maintained by various mechanisms and associated factors. Therefore, there is a need for further studies in this area to establish a deeper understanding of self-injury

REFERENCES

Abramowitz, J. S., Tolin, D. F., & Street, G. P. (2001). Paradoxical effects of thought suppression: A meta-analysis of controlled studies. *Clinical Psychology Review, 21*, 683–703.

Akın, A. (2010). Self-compassion and loneliness. Journal, *International Online Journal of Educational Sciences, 2*(3), 702–718.

Alataş, E., Bulut, S. D., Berkol, T. D., & Alataş, G. (2014). Repetitively cutting own oral mucosa as a self-harming behavior: A case report. *Düşünen Adam The Journal of Pyschiatriy and Neurological Sciences, 27*, 173-177.

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington DC: Author.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Ammerman, B. A., Jacobucci, R., Kleiman, E. M., Uyeji, L. L., & McCloskey, M. S. (2017). Prevalence of nonsuicidal self-injury in nonclinical samples: Systematic review, meta-analysis and meta-regression, *47*, 1-7.

Anderson, N. L., & Crowther, J. H. (2012). Using the experiential avoidance model of non-suicidal self-injury: Understanding who stops and who continues. *Archives of Suicide Research, 16*(2), 124–134.

Anestis, M. D., Pennings, S. M., Lavender, J. M., Tull, M. T., & Gratz, K. L. (2013). Low distress tolerance as an indirect risk factor for suicidal behavior: Considering the explanatory role of non-suicidal self-injury. *Comprehensive Psychiatry*, *54*(7), 996–1002.

Andover, M. S., & Morris, B. W. (2014). Expanding and clarifying the role of emotion regulation in nonsuicidal self-injury. *The Canadian Journal of Psychiatry*, *59*(11), 569-575.

Andover, M. S., Pepper, C. M., Ryabchenko, K. a, Orrico, E. G., & Gibb, B. E. (2005). Self-mutilation and symptoms of depression, anxiety, and borderline personality disorder. *Suicide & Life-Threatening Behavior*, *35*, 581–591.

Andover, M. S., Primack, J. M., Gibb, B. E., & Pepper, C. M. (2010). An examination of non-suicidal self-injury in men: Do men differ from women in basic NSSI characteristics? *Archives of Suicide Research: Official Journal of the International Academy for Suicide Research, 14*(1), 79–88.

Andrews, T., Martin, G., Hasking, P., & Page, A. (2013). Predictors of continuation and cessation of nonsuicidal self-injury. *Journal of Adolescent Health*, *53*(1), 40–46.

Altın, M., & Gençöz, T. (2009). Psychopathological correlates and psychometric properties of the White Bear Suppression Inventory in a Turkish sample. *European Journal of Psychological Assessment, 25*(1), 23–29.

Armey, M. F., Crowther, J. H., & Miller, I. W. (2011). Changes in ecological momentary assessment reported affect associated with episodes of nonsuicidal self-injury. *Behavior therapy*, *42*(4), 579-588.

Babiker G, Arnold L. (1997). *The Language of Injury: Comprehending Self mutilation*. Leicester: British Psychological Society.

Baral, I., Kora, K., Yuksel, S., & Sezgin, U. (1998). Self-mutilating behavior of sexually abused female adults in Turkey. *Journal of Interpersonal Violence*, *13*(4), 427-437.

Barnard, L. K., & Curry, J. F. (2011). Self-compassion: Conceptualizations, correlates, & interventions. *Review of General Psychology*. Advance online publication. doi: 10.1037/a0025754.

Baetens, I., Claes, L., Willem, L., Muehlenkamp, J., & Bijttebier, P. (2011). The relationship between non-suicidal self-injury and temperament in male and female adolescents based on child- and parent-report. *Personality and Individual Differences*, *50*(4), 527–530.

Bardeen, J. R., Fergus, T. A., & Orcutt, H. K. (2012). An examination of the latent structure of the Difficulties in Emotion Regulation Scale. *Journal of Psychopathology and Behavioral Assessment*, *34*(3), 382-392.

Bentley, K. H., Cassiello-Robbins, C. F., Vittorio, L., Sauer-Zavala, S., & Barlow, D. H. (2015). The association between nonsuicidal self-injury and the emotional disorders: A meta-analytic review. *Clinical Psychology Review*, *37*, 72-88.

Bildik, T., Somer, O., Kabukçu-Başay, B., Başay, Ö., & Özbaran, B. (2013). Kendine Zarar Verme Davranışı Değerlendirme Envanteri'nin Türkçe formunun geçerlik ve güvenilirlik çalışması. *Türk Psikiyatri Dergisi*, *24*(1), 49-57.

Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults. *Journal of Abnormal Psychology*, *85*, 383–389.

Bluth, K., Gaylord, S. A., Campo, R. A., Mullarkey, M. C., & Hobbs, L. (2016).

Making friends with yourself: A mixed methods pilot study of a mindful self-compassion program for adolescents. *Mindfulness*, *7*, 479-492.

Bohus, M., Limberger, M., Ebner, U., Glocker, F. X., Schwarz, B., Wernz, M., & Lieb, K. (2000). Pain perception during self-reported distress and calmness in patients with borderline personality disorder and self-mutilating behavior. *Psychiatry research*, *95*(3), 251-260.

BPDisOP (2016, November). Every time something good is happening, I want to cut to "prepare" myself for when things get bad. [Reddit post]. Retrieved from https://www.reddit.com/r/selfharm/comments/5bsgrj/every_time_something_good_is_happening_i_want_to/

Brain, K. L., Haines, J., & Williams, C. L. (2002). The psychophysiology of repetitive self‐mutilation. *Archives of Suicide Research*, *6*(3), 199-210.

Brain, K. L., Haines, J., & Williams, C. L. (1998). The psychophysiology of self-mutilation: Evidence of tension reduction. *Archives of Suicide Research*, *4*(3), 227-242.

Bresin, K., & Gordon, K. H. (2013). Changes in negative affect following pain (vs. nonpainful) stimulation in individuals with and without a history of nonsuicidal self-injury. *Personality Disorders: Theory, Research, and Treatment*, *4*(1), 62–66.

Brausch, A. M., & Girresch, S. K. (2012). A review of empirical treatment studies for adolescent nonsuicidal self-injury. *Journal of Cognitive Psychotherapy*, *26*(1), 3-18.

Bresin, K., & Schoenleber, M. (2015). Gender differences in the prevalence of nonsuicidal self-injury: A meta-analysis. *Clinical Psychology Review*, *38*, 55–64.

Buck, K. A., & Dix, T. (2012). Can developmental changes in inhibition and peer relationships explain why depressive symptoms increase in early adolescence?. *Journal of youth and adolescence*, *41*(4), 403-413.

Bunderla, T., & Kumperščak, H. G. (2015). Altered pain perception in self-injurious behavior and the association of psychological elements with pain perception measures: A systematic review. *Psychiatria Danubina*, *27*(4), 346–354.

Butler, A. M., & Malone, K. (2013). Attempted suicide v. non-suicidal self-injury: Behaviour syndrome or diagnosis? *British Journal of Psychiatry*, *202*(5), 324–325.

Chapman, A. L., Gratz, K. L., & Brown, M. Z. (2006). Solving the puzzle of deliberate self-harm: The experiential avoidance model. *Behaviour Research and Therapy*, *44*, 371–394.

Cheung, Y. T. D., Wong, P. V. C., Lee, A. M. Lam, T. H., Fan, Y. S. S., Yip, P. S. F. (2013). Non-suicidal self-injury and suicidal behavior : Prevalence, co-occurrence, and correlates of suicide among adolescents in Hong Kong. *Social Psychiatry and Psychiatric Epidemiology*, *48*, 1133–1144.

Claes, L., Klonsky, E. D., Muehlenkamp, J., Kuppens, P., & Vandereycken, W. (2010). The affect-regulation function of nonsuicidal self-injury in eating-disordered patients: which affect states are regulated? *Comprehensive Psychiatry*, *51*(4), 386–392.

Claes, L., Soenens, B., Vansteenkiste, M., & Vandereycken, W. (2012). The scars of the inner critic: Perfectionism and nonsuicidal self-injury in eating disorders. *European Eating Disorders Review*, *20*(3), 196–202.

Clark, L. A., & Watson, D. (l991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology, 100*, 316–336.

Cohen, J. N., Stange, J. P., Hamilton, J. L., Burke, T. A., Jenkins, A., Ong, M., Heimberg, R. G., Abramson, L. Y., & Alloy, L. B. (2015). The interaction of affective states and cognitive vulnerabilities in the prediction of non-suicidal self-injury. *Cognition and Emotion*, *29*(3), 539-547.

Cooper, J., Kapur, N., Webb, R., Lawlor, M., Guthrie, E., Mackway-Jones, K., & Appleby, L. (2005). Suicide after deliberate self-harm: a 4-year cohort study. *American Journal of Psychiatry*, *162*(2), 297-303.

Crowell S., Beauchaine T. P., McCauley, E., Smith, C., Stevens, A. L., Sylvers, P. (2005). Psychological, autonomic, and serotonergic correlates of parasuicidal behavior in adolescent girls. *Development and Psychopathology*, *17*, 1105–1127.

Dahlström, Ö., Zetterqvist, M., Lundh, L. G., & Svedin, C. G. (2015). Functions of nonsuicidal self-injury: Exploratory and confirmatory factor analyses in a large community sample of adolescents. *Psychological Assessment*, *27*(1), 302-313.

Davis, T. S., Mauss, I. B., Lumian, D., Troy, A. S., Shallcross, A. J., Zarolia, P., … McRae, K. (2014). Emotional reactivity and emotion regulation among adults with a history of self-harm: Laboratory self-report and functional MRI evidence. *Journal of Abnormal Psychology, 123*(3), 499–509.

Deniz, M. E., Kesici, Ş., & Sümer, A. S. (2008). The validity and reliability of the Turkish version of the self-compassion scale. *The Social Behavior and Personality*, *36*(9), 1151-1160.

Doğan, T. (2011). Two-Dimensional Self-Esteem: Adaptation of the Self-Liking/Self-Competence Scale into Turkish, a Validity and Reliability Study. *Egitim ve Bilim*, *36*(162), 126-137.

D'Onofrio, A. A. (2007). *Adolescent Self-Injury: A Comprehensive Guide for Counselors and Health Care Professionals*. New York: Springer Publishing Company.

Eisenberger, N. I. (2012). Broken hearts and broken bones A neural perspective on the similarities between social and physical pain. *Current Directions in Psychological Science*, *21*(1), 42-47.

Eldoğan, D., & Barışkın, E. (2014). Erken dönem uyumsuz şema alanlari ve sosyal fobi belirtileri: Duygu düzenleme güçlüğünün aracı rolü var mı? *Türk Psikoloji Dergisi*, *29*(74), 108.

Elmas, P. H. G., Cesur, P. G., & Oral, E. T. (2016). Aleksitimi ve Patolojik Kumar: Duygu Düzenleme Güçlüğünün Aracı Rolü. *Türk Psikiyatri Dergisi*, *28(1),* 17-24.

Erskine, J. A., & Georgiou, G. J. (2010). Effects of thought suppression on eating behaviour in restrained andnon-restrained eaters. *Appetite, 54*(3), 499-503.

Evren, C., & Evren, B. (2005). Self-mutilation in substance-dependent patients and relationship with childhood abuse and neglect, alexithymia and temperament and character dimensions of personality. *Drug and Alcohol Dependence, 80,* 15–22.

Evren, C., Kural, S., & Cakmak, D. (2006). Clinical correlates of self-mutilation in Turkish male substance-dependent inpatients. *Psychopathology*, *39*(5), 248–254.

Fox, K. R., Franklin, J. C., Ribeiro, J. D., Kleiman, E. M., Bentley, K. H., & Nock, M. K. (2015). Meta-analysis of risk factors for nonsuicidal self-injury. *Clinical psychology review*, *42*, 156-167.

Franklin, J. C., Aaron, R. V., Arthur, M. S., Heilbron, N., & Prinstein, M. J. (2010). The functions of nonsuicidal self-injury: Support for the cognitive-affective regulation and opponent processes from a novel psychophysiological paradigm. *Journal of Abnormal Psychology*, *119*, 850–862.

Franklin, J. C., Aaron, R. V., Arthur, M. S., Shorkey, S. P., & Prinstein, M. J. (2012). Nonsuicidal self-injury and diminished pain perception: The role of emotion dysregulation. *Comprehensive Psychiatry*, *53*, 691–700.

Franklin, J. C., Hessel, E. T., & Prinstein, M. J. (2011). Clarifying the role of pain tolerance in suicidal capability. *Psychiatry Research*, *189*, 362-367.

Franklin, J. C., Puzia, M. E., Lee, K. M., Lee, G. E., Hanna, E. K., Spring, V. L., & Prinstein, M. J. (2013). The nature of pain offset relief in nonsuicidal self-injury. *Clinical Psychological Science*, *1*(2), 110–119.

Franklin, J.C.**,** Puzia, M.E., Lee, K.M.,Chung, G., Hanna, E.K., Spring, V.L., & Prinstein, M.J. (2013a). Pain offset relief in nonsuicidal self-injury: A laboratory investigation. *Clinical Psychological Science, 1*, 110-119.

Freud, S. (1917). Mourning and melancholia. *The Standard Edition of the Complete Psychological Works of Sigmund Freud, 14*, 243–258.

Franklin, J. C., Lee, K. M., Hanna, E. K., & Prinstein, M. J. (2013a). Feeling worse to feel better pain-offset relief simultaneously stimulates positive affect and reduces negative affect. *Psychological Science*, *24*(4) 521–529.

García-Nieto, R., Carballo, J. J., Hernando, M. D. D. N., de León-Martinez, V., & Baca-García, E. (2014). Clinical correlates of Non-Suicidal Self-Injury (NSSI) in an outpatient sample of adolescents. *Archives of Suicide Research, 19,* 218–230.

Gençöz, T. (2000). Pozitif ve Negatif Duygu Durum Ölçeği: Geçerlik ve güvenirlik çalışması [Positive and Negative Affect Schedule: A study of validity and reliability]. *Türk Psikoloji Dergisi*, *15*(46), 19-28.

Gençöz, T. (2002). Discriminant validity of low positive affect: Is it specific to depression?. *Personality and Individual Differences*, *32*(6), 991-999.

Geyskens, T., & Van Haute, P. (2007). *From death instinct to attachment theory: the primacy of the child in Freud, Klein, and Hermann*. Other Press.

Gilbert, P. (2010). *Compassion focused therapy: Distinctive features.* London, England: Routledge.

Gilbert, P., Clarke, M., Hempel, S., Miles, J. N. V, & Irons, C. (2004). Criticizing and reassuring oneself: An exploration of forms, styles and reasons in female students. *The British Journal of Clinical Psychology / the British Psychological Society*, *43*(1), 31–50.

Glassman, L. H., Weierich, M. R., Hooley, J. M., Deliberto, T. L., & Nock, M. K. (2007). Child maltreatment, non-suicidal self-injury, and the mediating role of self-criticism. *Behaviour Research and Therapy*, *45*(10), 2483–2490.

Glenn, C. R., Blumenthal, T. D., Klonsky, E. D., & Hajcak, G. (2011). Emotional reactivity in nonsuicidal self-injury: Divergence between self-report and startle measures. *International Journal of Psychophysiology*, *80*(2), 166-170.

Glenn, C. R., & Klonsky, E. D. (2013). Non-suicidal self-injury disorder: An empirical investigation in adolescent psychiatric patients. *Journal of Clinical Child and Adolescent Psychology*, *42*(4): 496–507.

Glenn, J. J., Michel, B. D., Franklin, J. C., Hooley, J. M., & Nock, M. K. (2014). Pain analgesia among adolescent self-injurers. *Psychiatry Research*, *220*, 921–926.

Goldstein, A. L., Flett, G. L., Wekerle, C., & Wall, A. M. (2009). Personality, child maltreatment, and substance use: Examining correlates of deliberate self-harm among university students. *Canadian Journal of Behavioural Science*, *41*(4), 241–251.

Grant, D. A., & Berg, E. A. (1948). A behavioral analysis of degree of impairment and ease of shifting to new responses in a Weigl-type card sorting problem. *Journal of Experimental Psychology*, *39*, 404–411.

Gratz, K. L. (2003). Risk factors for and functions of deliberate self-harm: An empirical and conceptual review. *Clinical Science and Practice*, *10*, 192–205.

Gratz, K. L. (2007). Targeting emotion dysregulation in the treatment of self-injury. *Journal of Clinical Psychology: In Session*, *63*, 1091–1103.

Gratz, K. L., & Chapman, A. L. (2007). The role of emotional responding and childhood maltreatment in the development and maintenance of deliberate self-harm among male undergraduates. *Psychology of Men & Masculinity*, *8*(1), 1–14.

Gratz, K. L., & Gunderson, J. G. (2006). Preliminary data on an acceptance-based emotion regulation group intervention for deliberate self-harm among women with borderline personality disorder. *Behavior Therapy*, *37*, 25–35.

Gratz, K. L., Hepworth, C., Tull, M. T., Paulson, A., Clarke, S., Remington, B., & Lejuez, C. W. (2011). An experimental investigation of emotional willingness and physical pain tolerance in deliberate self-harm: The moderating role of interpersonal distress. *Comprehensive Psychiatry*, *52*(1), 63–74.

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology & Behavioral Assessment*, *26*(1), 41-54.

Gratz, K. L., & Roemer, L. (2008). The relationship between emotion dysregulation and deliberate self-harm among female undergraduate students at an urban commuter university. *Cognitive Behavior Therapy*, *37*(1), 14-25.

Groschwitz, R. C., & Plener, P. L. (2012). The neurobiology of non-suicidal self-injury (NSSI): A review. *Suicidology Online*, *3*, 24–32.

Gross, J. J., & Munoz, R. F. (1995). Emotion regulation and mental health. *Clinical Psychology: Science and Practice, 2,* 151-164.

Guerry, J. D., & Prinstein, M. J. (2010). Longitudinal prediction of adolescent nonsuicidal self-injury: Examination of a cognitive vulnerability-stress model. *Journal of Clinical Child & Adolescent Psychology*, *39*(1), 77–89.

Haines, J., Williams, C. L., Brain, K. L., & Wilson, G. V. (1995). The psychophysiology of self-mutilation. *Journal of Abnormal Psychology, 104*(3), 471–489.

Hamza, C. A., & Willoughby, T. (2015). Nonsuicidal self-injury and affect regulation: Recent findings from experimental and ecological momentary assessment studies and future directions. *Journal of Clinical Psychology, 71*(6), 561-574.

Hamza, C., Willoughby, T., & Armiento, J. (2014). A laboratory examination of pain threshold and tolerance among nonsuicidal self-injurers with and without self-punishing motivations. *Archives of Scientific Psychology*, *2*, 33-42.

Hankin, B. L., & Abela, J. R. Z. (2011). Nonsuicidal self-injury in adolescence: prospective rates and risk factors in a 2½ year longitudinal study. *Psychiatry Research*, *186*(1), 65–70.

Hasking, P. A., Coric, S. J., Swannell, S., Martin, G., Thompson, H. K., & Frost, A. D. J. (2010). Brief report: Emotion regulation and coping as moderators in the relationship between personality and self-injury. *Journal of Adolescence*, *33*(5), 767–773.

Hasking, P., Momeni, R., Swannell, S., & Chia, S. (2008). The nature and extent of non-suicidal self-injury in a non-clinical sample of young adults. *Archives of Suicide Research*, *12*, 208–218.

Hawton, K., Zahl, D., & Weatherall, R. (2003). Suicide following deliberate self-harm: long-term follow-up of patients who presented to a general hospital. *British Journal of Psychiatry, 182*, 537–542.

Heath, N. L., Toste, J. R., Nedecheva, T., & Charlebois, A. (2008). An Examination of nonsuicidal self-injury among college students. *Journal of Mental Health Counseling, 30*(2), 137-156.

Hilt, L. M., Nock, M. K, Lloyd-Richardson, E. E., & Prinstein, M. J. (2008). Longitudinal study of nonsuicidal self-injury among young adolescents:

Rates, correlates, and preliminary test of an interpersonal model. *Journal of Early Adolescence*, *28*(3), 1-15.

Hiraoka, R. (2014). *The affect regulation function of nonsuicidal self-injury: An experimental examination using the cold pressor test* (Unpublished doctoral dissertation). Northern Illinois University, United States.

Hoff, E. R., & Muehlenkamp, J. J. (2009). Nonsuicidal self-injury in college students: the role of perfectionism and rumination. *Suicide & Life-Threatening Behavior*, *39*(6), 576–587.

Hooley, J. M., Ho, D. T., Slater, J., & Lockshin, A. (2010). Pain perception and non-suicidal self-injury: A laboratory investigation. *Personality Disorders: Theory, Research, and Treatment*, *1*, 170–179.

Hooley, J. M., & St. Germain, S. A. (2014). Nonsuicidal self-injury, pain, and self-criticism: Does changing self-worth change pain endurance in people who engage in self-injury? *Clinical Psychological Science***,** *2*(3), 297-305.

Howe-Martin, L. S., Murrell, A. R., & Guarnaccia, C. A. (2012). Repetitive nonsuicidal self-injury as experiential avoidance among a community sample of adolescents. *Journal of Clinical Psychology*, *68*(7), 809–829.

In-Albon, T., Ruf, C., & Schmid, M. (2013). Proposed diagnositic criteria for the 5 of nonsuicidal self-injury in female adolescents: Diagnostic and clinical correlates. *Psychiatry Journal*, 1-12.

International Society for the Study of Self-Injury (n.d.). *Fast facts*. Retrieved from http://itriples.org/redesadmin15/fast-facts/

Iskender, M., & Akin, A. (2011). Self-compassion and internet addiction. *Turkish Online Journal of Educational Technology*, *10*(3), 215–221.

Jacobson, C. M., Muehlenkamp, J. J., Miller, A. L., & Turner, J. B. (2008). Psychiatric impairment among adolescents engaging in different types of deliberate self-harm. *Journal of Clinical Child and Adolescent Psychology*, *37*(2), 363–375.

Jacobson, C. M., & Gould, M. (2007). The epidemiology and phenomenology of non-suicidal self-injurious behavior among adolescents: A critical review of the literature. *Archives of Suicide Research*, *11*, 37–41.

Janis, I. B., & Nock, M. K. (2009). Are self-injurers impulsive? Results from two behavioral laboratory studies. *Psychiatry research*, *169*(3), 261-267.

Jenkins, A. L., & Schmitz, M. F. (2012). The roles of affect dysregulation and positive affect in non-suicidal self-injury. *Archives of Suicide Research*, *16*, 212-225.

Jiang, Y., You, J., Hou, Y., Du, C., Lin, M. P., Zheng, X., & Ma, C. (2016). Buffering the effects of peer victimization on adolescent non-suicidal self-injury: The role of self-compassion and family cohesion. *Journal of Adolescence, 53*, 107–115.

Joiner, T. E. (2005). *Why people die by suicide*. Cambridge, MA: Harvard University Press.

Joiner, T. E., Ribeiro, J. D., & Silva, C. (2012). Nonsuicidal self-injury, suicidal behavior, and their co-occurrence as viewed through the lens of the interpersonal theory of suicide. *Current Directions in Psychological Science, 21*, 342–347.

Kaess, M., Parzer, P., Mattern, M., Plener, P. L., Bifulco, A., Resch, F., & Brunner, R. (2013). Adverse childhood experiences and their impact on frequency, severity, and the individual function of nonsuicidal self-injury in youth. *Psychiatry Research, 206*, 265–272.

Kemperman, I., Russ, M. J., Clark, W. C., Kakuma, T., Zanine, E., & Harrison, K. (1997). Pain assessment in self-injurious patients with borderline personality disorder using signal detection theory. *Psychiatry research*, *70*(3), 175-183.

Kernberg, O. F. (1988). Clinical dimensions of masochism. *Journal of the American Psychoanalytic Association, 36*, 1005–1029.

Kernberg, O. F. (2004). *Aggressivity, narcissism, and self-destructiveness in the psychotherapeutic relationship: New developments in the psychopathology and psychotherapy of severe personality disorders.* New Haven: Yale University Press.

Kernberg, O. F. (2012). *The inseparable nature of love and aggression*: *Clinical and theoretical perspectives*. Arlington, VA: American Psychiatric Publishing.

Kirtley, O. J., O'Carroll, R. E., & O'Connor, R. C. (2016). Pain and self-harm: A systematic review. *Journal of affective disorders, 203*, 347-363.

Karagöz, B., & Dağ, İ. (2015). The relationship between childhood maltreatment and emotional dysregulation in self-mutilation: An investigation among substance dependent patients. *Nöropsikiyatri Arşivi, 52*, 8–14.

Klonsky, E. D. (2011). Non-suicidal self-injury in United States adults: Prevalence, sociodemographics, topography and functions. *Psychological medicine*, *41*(09), 1981-1986.

Klonsky, E. D. (2009). The functions of self-injury in young adults who cut themselves: Clarifying the evidence for affect-regulation. *Psychiatry Research, 166*, 260-268.

Klonsky, E. D. (2007a). Non-suicidal self-injury: An introduction. *Journal of Clinical Psychology*, *63*(11), 1039-1043.

Klonsky, E. D. (2007). The functions of deliberate self-injury: A review of the evidence. *Clinical Psychology Review*, *27*(2), 226–239.

Klonsky, E. D., & Glenn, C. R. (2009). Assessing the functions of non-suicidal self-injury: Psychometric properties of the Inventory of Statements about Self-injury (ISAS). *Journal of Psychopathology and Behavioral Assessment*, *31*, 215-219.

Klonsky, E., & Moyer, A. (2008). Childhood sexual abuse and non-suicidal self-injury: meta-analysis. *The British Journal of Psychiatry*, *192*(3), 166–170.

Klonsky, E. D., & Muehlenkamp, J. J. (2007). Self-injury: A research review for the practitioner. *Journal of Clinical Psychology*, 63(11), 1045-1056.

Klonsky, E. D., & Olino, T. M. (2008). Identifying clinically distinct subgroups of self-injurers among young adults: A latent class analysis. *Journal of Consulting and Clinical Psychology*, *76*, 22-27.

Klonsky, E. D., Oltmanns, T. F., & Turkheimer, E. (2003). Deliberate self-harm in a nonclinical population: Prevalence and psychological correlates. *American Journal of Psychiatry*, *160*, 1501–1508.

Klonsky, E. D., Victor, S. E., & Saffer, B. Y. (2014). Nonsuicidal self-injury: What we know, and what we need to know. *Canadian Journal of Psychiatry*, *59*(11), 565-568.

Koenig, J., Warth, M., Koenig, J., Rinnewitz, L., Warth, M., Hillecke, T. K., … Kaess, M. (2016). Psychobiological response to pain in female adolescents with non-suicidal self-injury. Journal of Psychiatry & Neuroscience, *42*(1), 1–11.

Kraemer, H. C., Kazdin, A. E., Offord, D. R., Kessler, R. C., Jensen, P. S., & Kupfer, D. J. (1997). Coming to terms with the terms of risk. *Archives of General Psychiatry*, *54*(4), 337-343.

Lindholm, T., Bjärehed, J., & Lundh, L. G. (2011). Functions of nonsuicidal self-injury among young women in residential care: A pilot study with the Swedish version of the inventory of statements about self-injury. *Cognitive behaviour therapy*, *40*(3), 183-189.

Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford Press.

Lloyd-Richardson, E. E., Nock, M. K., & Prinstein, M. J. (2008). Functions of adolescent self-injury. In Nixon, M. K., & Heath , N. L. (Eds.), *Self-Injury*

in youth: The essential guide to assessment and intervention (pp. 29-43). New York: Routledge.

Lloyd-Richardson, E. E., Perrine, N., Dierker, L., & Kelley, L. (2007). Characteristics and functions of non-suicidal self-injury in a community sample of adolescents. *Psychological Medicine, 37*(8), 1183–1192.

Loggia, M. L., Juneau, M., & Bushnell, M. C. (2011). Autonomic responses to heat pain: Heart rate, skin conductance, and their relation to verbal ratings and stimulus intensity. *Pain, 152*(3), 592-598.

Ludäscher, P., Greffrath, W., Schmahl, C., Kleindienst, N., Kraus, A., Baumgärtner, U., ... & Bohus, M. (2009). A cross-sectional investigation of discontinuation of self-injury and normalizing pain perception in patients with borderline personality disorder. *Acta Psychiatrica Scandinavica, 120*(1), 62-70.

Mccoy, K., Fremouw, W., Mcneil, D. W., & Virginia, W. (2010). Young adults who self-injure. *Research Management*, *15*(6), 371–377.

McWilliams, N. (1994). *Psychoanalytic diagnosis: Understanding personality structure in the clinical process*. New York: The Guilford Press.

Menninger, K. (1938). *Man against himself*. London: Harvest Books.

Muehlenkamp, J. J. (2005). Self-injurious behavior as a separate clinical syndrome. *The American Journal of Orthopsychiatry*, *75*(2), 324–333.

Muehlenkamp, J., Brausch, A., Quigley, K., & Whitlock, J. (2013). Interpersonal features and functions of nonsuicidal self-injury. *Suicide and Life-Threatening Behavior*, *43*(1), 67–80.

Muehlenkamp, J. J., Claes, L., Havertape, L., & Plener, P. L. (2012). International prevalence of adolescent non-suicidal self-injury and deliberate self-harm. *Child and Adolescent Psychiatry and Mental Health*, *6*, 10.

Muehlenkamp, J. J., Engel, S. G., Wadeson, A., Crosby, R. D., Wonderlich, S. A., Simonich, H., & Mitchell, J. E. (2009). Emotional states preceding and following acts of non-suicidal self-injury in bulimia nervosa patients. *Behaviour Research and Therapy*, *47*(1), 83–87.

Muris, P., Merckelbach, H., & Horselenberg, R. (1996). Individual differences in thought suppression. The White Bear Suppression Inventory: Factor structure, reliability, validity and correlates. *Behaviour Research and Therapy, 34*(5), 501-513.

Najmi, S., Wegner, D. M., & Nock, M. K. (2007). Thought suppression and self-injurious thoughts and behaviors. *Behavior Research and Therapy*, *45*(8), 1957–1965.

NICE (2012). *Self-Harm: The NICE Guideline on Longer-Term Management*. London: The British Psychological Society and The Royal College of Psychiatrists.

Neff, K. D. (2003a). Development and validation of a scale to measure self-compassion. *Self and Identity*, *2*, 223–250.

Neff, K. D. (2003b). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, *2*, 85–102.

Neff, K. D., Hseih, Y., & Dejitthirat, K. (2005). Self-compassion, achievement goals, and coping with academic failure. *Self and Identity, 4,* 263-287.

Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality, 41*(1), 139–154.

Neff, K. D., & McGehee, P. (2009). Self-compassion and psychological resilience among adolescents and young adults. *Self and Identity, 9*(3), 225–240

Nicolai, K. A., Wielgus, M. D., & Mezulis, A. (2016). Identifying risk for self-harm: Rumination and negative affectivity in the prospective prediction of nonsuicidal self-injury. *Suicide and Life-Threatening Behavior, 46*(2), 223–233.

Niedtfeld, I., Schulze, L., Kirsch, P., Herpertz, S. C., Bohus, M., & Schmahl, C. (2010). Affect regulation and pain in borderline personality disorder: A possible link to the understanding of self-injury. *Biological psychiatry, 68*(4), 383-391.

Nixon, M. K., & Heath, M. L (2009). *Self-Injury in Youth: The Essential Guide to Assessment and Intervention.* New York: Routledge.

Nock, M. K. (2009). Why do people hurt themselves? New insights into the nature and functions of self-injury. *Current Directions in Psychological Science, 18*(2), 78-83.

Nock, M. K. (2008). Actions speak louder than words: An elaborated theoretical model of the social functions of self-injury and other harmful behaviors. *Applied and Preventive Psychology, 12*(4): 159–168.

Nock, M. K. (2010). Self-injury. *Annual Review of Clinical Psychology, 6*, 339–363.

Nock, M.K., & Cha, C.B. (2009). Psychological models of nonsuicidal self-injury. In M.K. Nock (Ed.), *Understanding nonsuicidal self-injury: Origins, assessment, and treatment* (pp. 65-78). Washington, DC: American Psychological Association.

Nock M., Joiner T., Gordon K., Lloyd-Richardson, E., & Prinstein, M. J. (2006). Non-suicidal self-injury among adolescents : Diagnostic correlates and relation to suicide attempts. *Psychiatry Research*, *144*, 65–72.

Nock, M. K., & Mendes, W. B. (2008). Physiological arousal, distress tolerance, and social problem–solving deficits among adolescent self-injurers. *Journal of Consulting and Clinical Psychology*, *76*(1), 28-38.

Nock, M. K., & Prinstein, M. J. (2004). A functional approach to the assessment of self-mutilative behavior. *Journal of Consulting and Clinical Psychology*, *72*(5), 885–890.

Nock, M. K., & Prinstein, M. J. (2005). Contextual features and behavioral functions of self-mutilation among adolescents. *Journal of Abnormal Psychology*, *114*, 140–146.

Nock, M. K., Prinstein, M. J., & Sterba, S. K. (2010). Revealing the form and function of self-injurious thoughts and behaviors: A real-time ecological assessment study among adolescents and young adults. *Journal of Abnormal Psychology*, *118*(4), 816–827.

Nock, M. K., Wedig, M. M., Holmberg, E. B., & Hooley, J. M. (2008). The Emotion Reactivity Scale: Development, evaluation, and relation to self-injurious thoughts and behaviors. *Behavior Therapy*, *39*(2), 107–116.

Oktan, V. (2014). A characterization of self-injurious behavior among Turkish adolescents. *Psychological Reports: Disability & Trauma*, *115*(3), 645–654.

Öksüz, E., & Malhan, S. (2005). Socioeconomic factors and health risk behaviors among university students in Turkey: Questionnaire study. *Croatian Medical Journal*, *46*, 66–73.

Öngen, D. E. (2006). The relationships between self-criticism, submissive behavior and depression among Turkish adolescents. *Personality and Individual Differences*, *41*, 793-800.

Paivio, S. C., & Mcculloch, C. R. (2004). Alexithymia as a mediator between childhood trauma and self-injurious behaviors, *Child Abuse & Neglect*, *28*, 339–354.

Paul, T., Schroeter, K., Dahme, B., & Nutzinger, D. O. (2002). Self-injurious behavior in women with eating disorders. *American Journal of Psychiatry*, *159*, 408–411.

Peterson, R. A. (2001). On the use of college students in social science research: Insights from a second order meta-analysis. *Journal of Consumer Research*, *28*, 450–461.

Plener, P. L., Libal, G., Keller, F., Fegert, J. M., & Muehlenkamp, J. J. (2009). An international comparison of adolescent non-suicidal self-injury (NSSI) and suicide attempts: Germany and the USA. *Psychological Medicine*, *39*, 1549–1558.

Purdon, C. (1999). Thought suppression and psychopathology. *Behaviour Research and Therapy*, *37*(11), 1029-1054.

Rosenthal, M. Z., Cheavens, J. S., Lejuez, C. W., & Lynch, T. R. (2005). Thought suppression mediates the relationship between negative affect and borderline personality disorder symptoms. *Behaviour Research and Therapy*, *43*, 1173–1185.

Ross, S., & Heath, N. (2002). A study of the frequency of self-mutilation in a community sample of adolescents. *Journal of Youth and Adolescence*, *1*, 67–77.

Rugancı, R. N., & Gençöz, T. (2010). Psychometric properties of the Difficulty of Emotion Regulation Scale in a Turkish sample. *Journal of Clinical Psychology*, *66*, 442-455.

Russ, M. J., Campbell, S. S., Kakuma, T., Harrison, K., & Zanine, E. (1999). EEG theta activity and pain insensitivity in self-injurious borderline patients. *Psychiatry research*, *89*(3), 201-214.

Sansone, R. A., & Levitt, J. L. (2002). Self-harm behaviors among those with eating disorders: An overview. *Eating Disorders*, *10*, 205–213.

Schmidt, R. E., Gay, P., Courvoisier, D., Jermann, J., Ceschi, G., David, M., Brinkmann, K., & Van der Linden, M. (2009). Anatomy of the White Bear Suppression Inventory (WBSI): A review of previous findings and a new approach. *Journal of Personality Assessment*, *91*, 323-330.

Schoenleber, M., Berenbaum, H., & Motl, R. (2014). Shame-related functions of

and motivations for self-injurious behavior. Per*sonality Disorders: Theory, Research, and Treatment*, *5*, 204–211.

Selby, E. A., Anestis, M. D., & Joiner, T. E. (2008). Understanding the relationship between emotional and behavioral dysregulation: Emotional cascades. *Behaviour research and therapy*, *46*(5), 593-611.

Selby, E. A., Bender, T. W., Gordon, K. H., Nock, M. K., & Joiner, T. E. (2012). Non-suicidal self-injury (NSSI) disorder: A preliminary study. *Personality Disorders: Theory, Research, and Treatment*, *3*(2), 167–175.

Selby, E. A., & Joiner Jr, T. E. (2009). Cascades of emotion: The emergence of borderline personality disorder from emotional and behavioral dysregulation. *Review of General Psychology*, *13*(3), 219.

Sim, L., Adrian, M., Zeman, J., Cassano, M., & Friedrich, W. N. (2009). Adolescent deliberate self-harm: Linkages to emotion regulation and family emotional climate. *Journal of Research on Adolescence*, *19*(1), 75–91.

Smith, N. B. (2014). *Physiological responses to pain in self-injurers: An in-depth investigation* (Unpublished doctoral dissertation). Southern Methodist University, United States.

Smith, N. B., Steele, A. M., Weitzman, M. L., Trueba, A. F., & Meuret, A. E. (2014). Investigating the role of self-disgust in nonsuicidal self-injury. *Archives of Suicide Research*, *19*(1), 60–74.

Somer, O., Bildik, T., Kabukçu-Başay, B., Güngör, D., Başay, Ö., Farmer, R. F. (2015). Prevalence of non-suicidal self-injury and distinct groups of self-injurers in a community sample of adolescents. *Social Psychiatry and Psychiatric Epidemiology*, *50*(2), 219-226.

Sornberger, M. J., Health, N. L., Toste, J. R., & Mclouth, R. (2012). Nonsuicidal self-injury and gender: Patterns of prevalence, methods, and locations among adolescents. *Suicide and Life-Threatening Behavior*, *42*(3), 266–278.

St. Germain, S. A., & Hooley, J. M. (2013). Aberrant pain perception in direct and indirect non-suicidal self-injury: An empirical test of Joiner's interpersonal theory. *Comprehensive Psychiatry*, *54*(6), 694-701.

Stanton, K., & Watson, D. (2014). Positive and negative affective dysfunction in psychopathology. *Social and Personality Psychology Compass*, *8*(9), 555–567.

Sutherland, O., Dawczyka, A., De Leon, K., Cripps, J., & Lewis, S. P. (2014). Self-compassion in online accounts of nonsuicidal self-injury: An interpretive phenomenological analysis. *Counselling Psychology Quarterly*, *27*(4), 409-433.

Swannell, S., Martin, G., Page, A., Hasking, P., Hazell, P., Taylor, A., & Protani, M. (2012). Child maltreatment, subsequent non-suicidal self-injury and the mediating roles of dissociation, alexithymia and self-blame. *Child Abuse and Neglect*, *36*(7–8), 572–584.

Swannell, S. V., Martin, G. E., Page, A., Hasking, P., & St John, N. J. (2014). Prevalence of nonsuicidal self-injury in nonclinical samples: Systematic review, meta-analysis and meta-regression. *Suicide and Life-Threatening Behavior*, *44*(3), 273–303.

Szentagotai, A. (2006). Chronic thought suppression and psychopathology. *Cognition, Brain, Behavior*, *10*(3), 379–387.

Taliaferro, L. A., Muehlenkamp, J. J., Borowsky, I. W., Mcmorris, B. J., & Kugler, K. C. (2012). Factors Distinguishing Youth Who Report Self-Injurious Behavior: A Population-Based Sample. *Academic Pediatrics*, *12*(3), 205–213.

Tantam, D., & Huband, N. (2009). *Understanding Repeated Self-Injury: A Multidisciplinary Approach*. New York: Palgrave Macmillian.

Tatnell, R., Kelada, L., Hasking, P., & Martin, G. (2014). Longitudinal analysis of adolescent NSSI: The role of intrapersonal and interpersonal factors. *Journal of Abnormal Child Psychology*, *42*(6), 885–896.

Thompson, R., & Zuroff, D. C. (2004). The levels of self-criticism scale: comparative-self-criticism and internalized self-criticism. *Personality and Individual Differences*, *36*, 419–430.

Toprak, S., Çetin, I., Güven, T., Can, G., & Demircan, C. (2011). Self-harm, suicidal ideation and suicide attempts among college students. *Psychiatry Research*, *187*(1–2), 140–144.

Van Camp, I., Desmet, M., & Verhaeghe, P. (2011). Gender differences in non-suicidal self-injury: Are they on the verge of leveling off. *International Proceedings of Economics Development and Research*, *23*, 28-34.

Van Vliet, K. J., & Kalnins, G. R. C. (2011). A compassion-focused approach to nonsuicidal self-injury. *Journal of Mental Health Counseling, 33*(4), 295-311**.**

Victor, S. E., Styer, D., & Washburn, J. J. (2016). Functions of nonsuicidal self-injury (NSSI): Cross-sectional associations with NSSI duration and longitudinal changes over time and following treatment. *Psychiatry Research, 241,* 83–90.

Walsh, B. W. (2005). *Treating self-injury: A practical guide*. New York, NY: Guilford Press.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063-1070.

Wedig, M. M., & Nock, M. K. (2007). Parental expressed emotion and adolescent self-injury. *Journal of the American Academy of Child & Adolescent Psychiatry*, *46*(9), 1171–1178.

Weinberg & Klonsky (2012). The effects of self-injury on acute negative arousal: A laboratory simulation. Motivation and Emotion, *36*, 242–254.

Weiser, E. B. (2012). Associations between positive and negative affect and 12-month physical disorders in a national sample. *Journal of Clinical Psychology in Medical Settings*, *19*(2), 197–210.

Wenzlaff, R. M., & Wegner, D. M. (2000). Thought suppression. *Annual Reviews of Psychology*, *51*, 59–91.

Wegner, D. M., Schneider, D. J., Carter, S. R., & White, T. L. (1987). Paradoxical effects of thought suppression. *Journal of Personality and Social Psychology*, *53*, 5–13.

Wegner, D. M., & Zanakos, S. (1994). Chronic thought suppression. *Journal of Personality*, *62*, 615-640.

Whitlock, J., Eckenrode, J., & Silverman, D. (2006). Self-injurious behaviors in a college population. Pediatrics, *117*, 1939–1948.

Whitlock, J., Muehlenkamp, J., Eckenrode, J., Purington, A., Baral Abrams, G., Barreira, P., & Kress, V. (2013). Nonsuicidal self-injury as a gateway to suicide in young adults. Journal of Adolescent Health, *52*, 486–492.

Whitlock, J., Prussien, K., & Pietrusza, C. (2015). Predictors of self-injury cessation and subsequent psychological growth: results of a probability sample survey of students in eight universities and colleges. *Child and adolescent psychiatry and mental health*, *9*(1), 19.

Wilcox, H. C., Arria, A. M., Caldeira, K. M., Vincent, K. B., Pinchevsky, G. M., & O'Grady, K. E. (2012). Longitudinal predictors of past-year non-suicidal self-injury and motives among college students. *Psychological Medicine*, *42*(04), 717-726.

Williams, F., & Hasking, P. (2010). Emotion regulation, coping and alcohol use as moderators in the relationship between non-suicidal self-injury and psychological distress. *Prevention Science*, *11*, 33–41.

Yargıç, İ., Ersoy, E., Batmaz-Oflaz, S. (2012). Çocukluk çağı travmalarının intihar girişimi ve kendine zarar verme davranışı ile ilişkisi. *Anadolu Psikiyatri Dergisi*, *13*, 277-284.

Yates, T. M. (2004). The developmental psychopathology of self-injurious behavior: Compensatory regulation in posttraumatic adaptation. *Clinical Psychology Review*, *24*, 35–74.

Yurkowski, K., Martin, J., Levesque, C., Bureau, J. F., Lafontaine, M. F., & Cloutier, P. (2015). Emotion dysregulation mediates the influence of

relationship difficulties on non-suicidal self-injury behavior in young adults. *Psychiatry Research*, *228*, 871–878.

Xavier, A., Cunha, M., & Gouveia, J. P. (2015). Deliberate self-harm in adolescence: The impact of childhood experiences, negative affect and fears of compassion. *Revista de Psicopatologia Y Psicologia Clinica*, *20*(1), 41–49.

Xavier, A., Pinto Gouveia, J., & Cunha, M. (2016). Non-suicidal self-injury in adolescence: The role of shame, self-Criticism and fear of self-compassion. *Child and Youth Care Forum*, *45*(4), 571–586.

Xavier, A., Pinto-Gouveia, J., Cunha, M., & Carvalho, S. (2016). Self-criticism and depressive symptoms mediate the relationship between emotional experiences with family and peers and self-injury in adolescence. *The Journal of Psychology: Interdisciplinary and Applied*, *150*(8), 1046–1061.

Zelkowitz, R. L., Cole, D. A., Han, G. T., & Tomarken, A. J. (2016). The incremental utility of emotion regulation but not emotion reactivity in nonsuicidal self-injury. *Suicide and Life-Threatening Behavior*, *46*(5), 545–562.

Zetterqvist, M. (2015). The DSM-5 diagnosis of nonsuicidal self-injury disorder: a review of the empirical literature. *Child and Adolescent Psychiatry and Mental Health*, *9*(31).

Zetterqvist, M., Lundh, L., Dahlström, Ö., & Svedin, C. G. (2013). Prevalence and function of non-suicidal self-injury (NSSI) in a community sample of adolescents, using suggested DSM-5 criteria for a potential NSSI disorder, *Journal of Abnormal Child Psychology*, *41*, 759–773.

Zoroğlu, S. S., Tuzun, U., Sar, V., Tutkun, H., Savaş, H. A., Ozturk, M., … Kora, M. E. (2003). Suicide attempt and self-mutilation among Turkish high school students in relation with abuse, neglect and dissociation. *Psychiatry and Clinical Neurosciences*, *57*(1), 119–126.

APPENDICES

APPENDIX A: INFORMED CONSENT FORMS

STUDY 1

ARAŞTIRMAYA GÖNÜLLÜ KATILIM FORMU

Bu araştırmayı, ODTÜ Psikoloji Bölümü araştırma görevlilerinden Ezgi Tuna yürütmektedir. Araştırmanın amacı, kişilik özellikleri ile kendine zarar verme davranışı arasındaki ilişkiyi anlamaktır. Araştırmaya katılımınız tamamen gönüllülük temelinde olmalıdır. Katılım sırasında kendinizi rahatsız hissederseniz cevaplama işini yarıda bırakıp çıkmakta serbestsiniz.

Cevaplarınız tamamıyla **gizli** tutulacak, sadece araştırmacı tarafından değerlendirilecektir. Katılımcılardan elde edilecek bilgiler toplu halde değerlendirilecek ve bilimsel yayımlarda kullanılacaktır.

Bize Nasıl Yardımcı Olmanızı İsteyeceğiz?
Araştırmaya katılmayı kabul ederseniz, sizden yaklaşık olarak 20 dakika sürecek anketleri doldurmanız istenecektir. Anketler, çevrimiçi (online) olarak doldurulacak ve yanıtlarınız sisteme kaydedilecektir.

Anketinizin geçerli sayılması için tüm sorulara içtenlikle cevap vermeniz gerekmektedir. Yarım bırakılan ya da rastgele doldurulan anketler geçersiz sayılacaktır.

Araştırmayla ilgili daha fazla bilgi almak isterseniz:
Çalışma hakkında daha fazla bilgi almak için araştırma görevlisi Ezgi Tuna (E-posta:ezgi.tuna@yahoo.com) ile iletişim kurabilirsiniz.

Katıldığınız için şimdiden teşekkür ederiz.

İsim Soyad Tarih İmza

---/----/----

STUDY 2

ARAŞTIRMAYA GÖNÜLLÜ KATILIM FORMU

Bu çalışma ODTÜ Psikoloji Bölümü araştırma görevlilerinden Ezgi Tuna tarafından yürütülmektedir. Bu form sizi araştırma koşulları hakkında bilgilendirmek için hazırlanmıştır.

Bu çalışmanın amacı kişilik özellikleri ve çevresel etkenlere verilen tepkiler arasındaki ilişkiyi incelemektir. Araştırma psikoloji bölüm laboratuarında yapılacak ve yaklaşık 45 dakika sürecektir. Çalışmada sizden elinizi 5C'lik soğuk suya daldırmanız ve elinizi tutabildiğiniz kadar tutmanız istenecektir. Bu sırada parmağınıza takılan bir cihaz ile vücudunuzdaki fizyolojik değişimler ölçülecektir.

Katılımınızla ilgili bilmeniz gerekenler:

Bu çalışmaya katılmak tamamen gönüllülük esasına dayalıdır. Herhangi bir yaptırıma veya cezaya maruz kalmadan çalışmaya katılmayı reddedebilir veya çalışmayı bırakabilirsiniz.

Araştırmaya katılanlardan toplanan veriler tamamen gizli tutulacak, veriler ve kimlik bilgileri herhangi bir şekilde eşleştirilmeyecektir. Katılımcıların isimleri bağımsız bir listede toplanacaktır. Ayrıca toplanan verilere sadece araştırmacı ulaşabilecektir. Bu araştırmanın sonuçları bilimsel ve profesyonel yayınlarda veya eğitim amaçlı kullanılabilir, fakat katılımcıların kimliği gizli tutulacaktır.

Çalışmaya katılanlar bu duyurunun yapıldığı ders için 2 bonus puan alacaklardır.

Riskler:

Çalışma esnasında, elinizi soğuk suda tutarken fiziksel olarak rahatsızlık hissedebilirsiniz. İstediğiniz zaman prosedürü durdurabilir ve çalışmayı herhangi bir kaybınız olmaksızın bırakabilirsiniz. Soğuk su aktivitesi araştırmalarda sık kullanılan bir yöntem olup önemli bir risk taşımamaktadır fakat aşağıdaki semptomları daha önce göstermiş insanlarda stres tepkilerine (kalp atışlarının hızlanması, çok nadir ve aşırı durumlarda bayılma gibi) yol açabilir.

Bu yüzden aşağıdaki semptomlardan herhangi birini daha önce geçirdiyseniz araştırmaya katılmanız uygun değildir.

Kardiyovasküler bozukluklar

Bayılma nöbetleri veya nörolojik nöbetler

Soğuk ısırığı

Baskın olmayan elde (solaklar için sağ el, diğerleri için sol el) açık yara ve bereler

Baskın olmayan elde kırık

Reynaud hastalığı (soğuğa maruz kalan elin önce solukluk, sonra morarma ve en son da kızarma göstermesi)

Çalışmayla ilgili soru ve yorumlarınızı araştırmacıya iletebilirsiniz.

Yukarıdaki bilgileri okudum ve bu çalışmaya tamamen gönüllü olarak katılıyorum.

(Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

İsim Soyad Tarih İmza

---/----/-----

APPENDIX B: DEBRIEFING FORM

Araştırma Sonrası Bilgilendirme Formu

Öncelikle araştımamıza katıldığınız için teşekkür ederiz.

Katıldığınız araştırmanın amacı, kendine zarar verme, ağrı algısı ve fizyolojik tepkiler arasındaki ilişkiyi incelemektir. Geçmişte yapılan çalışmaların birçoğu, kendine zarar veren kişilerin vermeyenlere göre ağrıya karşı duyarlılığının daha az olduğunu göstermiştir. Bu araştırmada da kendine zarar verme geçmişi olan kişilerin daha düşük düzeyde ağrı hissetmeleri beklenmektedir.

Bu amaçla, yapılan soğuk su aktivitesinde ise katılımcılardan ellerini soğuk suda tutmaları istenmiştir. Bu işlemde, katılımcıların ağrı eşiği ve ağrı hissinin düzeyi ölçülmüştür. Sonrasında stres içeren bir durum yaratmak amacıyla katılımcılara kart testindeki cevaplarına bakılmaksızın "doğru değil" geribildirimi verilmiştir. Bunun bitiminde tekrar soğuk su aktivitesi uygulanmıştır. Kendine zarar verme geçmişi olan grubun vermeyenlere göre kart testinde daha fazla stres yaşamaları, stres karşısında fizyolojik tepkilerinin daha fazla olması ve ağrıya daha yüksek tolerans göstermeleri beklenmektedir.

Eğer araştırmayla ilgili sorularınız varsa araştırmacı Ezgi Tuna'ya ezgi.tuna@yahoo.com adresinden e-mail atarak sorabilirsiniz.

Teşekkür ederiz.

Çalışma Güvenliği

Bu çalışmada, katılımcıların araştırmanın hipotezlerini fark etmesi verecekleri tepkileri etkileyebileceğinden, katılımcılara kısmen yanıltıcı bilgiler verilmiştir. Katılımcıların daha sonra katılımcı olabilecek kişilerle bu içeriği paylaşmaları, çalışmada toplanan verilerin güvenirliğini azaltabilir. Bu sebeple çalışma ile ilgili bilgileri gizli tutmanız beklenmektedir.

Araştırmadan elde edilecek sonuçları olumsuz etkileyebileceğinden, çalışmanın amacı ve içeriği ile ilgili tüm bilgileri *gizli* tutmayı kabul ediyorum.

İsim Soyad İmza

APPENDIX C: STUDY 2 LABORATORY RECORD FORM

İsim:_____ Öğr. No: _____ Randevu Tarih/Saat: __/__ /2016-___:___

Gönüllü katılım formu verildi mi? ___ Ağrı kesici? ___ Yara? ___

COLD PRESSOR TEST-1 Begin

* İlk ağrı anı: _____

1) Şu anda ne kadar ağrı hissediyorsunuz? (İlk ağrı anı)
   1(çok hafif)_____10 (Dayanılamayacak düzeyde)

* Elini çıkardığı an: _____

2) Şu anda ne kadar ağrı hissediyorsunuz? (Çıkardığı an)
   1(çok hafif)_____10 (Dayanılamayacak düzeyde)

COLD PRESSOR TEST-1 End

1) Şu anda kendinizi ne kadar rahat hissediyorsunuz?

0 (En az rahat)_____100 (En rahat)

2) Şu anda kendinizi ne kadar sıkıntılı hissediyorsunuz?

0 (En az sıkıntılı)_____100 (En sıkıntılı)

Distress Tolerance Begin

1) .	5)	9)	13)	17)
2) .	6)	10)	14)	18)
3) .	7)	11)	15)	19)
4)	8)	12)	16)	20)

Distress Tolerance 20. Kart

1) Şu anda kendinizi ne kadar rahat hissediyorsunuz?

0 (En az rahat)_____100 (En rahat)

2) Şu anda kendinizi ne kadar sıkıntılı hissediyorsunuz?

0 (En az sıkıntılı)_____100 (En sıkıntılı)

21)	28)	35)	42)	49)	56)	63)
22)	29)	36)	43)	50)	57)	64)
23)	30)	37)	44)	51)	58)	
24)	31)	38)	45)	52)	59)	
25)	32)	39)	46)	53)	60)	
26)	33)	40)	47)	54)	61)	
27)	34)	41)	48)	55)	62)	

Distress Tolerance End

1) Şu anda kendinizi ne kadar rahat hissediyorsunuz?

0 (En az rahat)_____100 (En rahat)

2) Şu anda kendinizi ne kadar sıkıntılı hissediyorsunuz?

0 (En az sıkıntılı)_____100 (En sıkıntılı)

Toplam kart sayısı: _____

COLD PRESSOR TEST-2 Begin

* İlk ağrı anı: _____

1) Şu anda ne kadar ağrı hissediyorsunuz? (İlk ağrı anı)
   1(çok hafif)_____10 (Dayanılamayacak düzeyde)

* Elini çıkardığı an: _____

2) Şu anda ne kadar ağrı hissediyorsunuz? (Çıkardığı an)
   1(çok hafif)_____10 (Dayanılamayacak düzeyde)

COLD PRESSOR TEST-2 End

1) Şu anda kendinizi ne kadar rahat hissediyorsunuz?

0 (En az rahat)_____100 (En rahat)

2) Şu anda kendinizi ne kadar sıkıntılı hissediyorsunuz?

0 (En az sıkıntılı)_____100 (En sıkıntılı)

End of the Study

APPENDIX D: STUDY 2 LABORATORY INSTRUCTIONS

YÖNERGE 1: *"*Bu çalışma kişilik özellikleri ile farklı duyular arasındaki ilişkileri incelemektedir. Çalışmaya başlamadan önce sol elinizin iki parmağına görmüş olduğunuz elektrotları bağlayarak çalışma boyunca derinizdeki iletkenlik değişimlerini kaydedeceğiz. Bu uygulama herhangi bir rahatsızlık hissi ya da zarar vermemekte ve araştırmalarda güvenli biçimde kullanılmaktadır. Ölçümün doğru şekilde alınabilmesi için sol kolunuzu mümkün olduğunca hareket ettirmeden, sabit şekilde tutmanız gerekiyor, lütfen çalışma başladıktan sonra zorunlu kalmadıkça konuşmayın ve yerinizden kalkmayın. Sorunuz varsa cevaplayabilirim.

Şimdi vücudunuzun cihaza alışması için birkaç dakika kadar sessizce ve hareket etmeden beklemenizi istiyorum."

YÖNERGE 2: "Şu an uygulayacağımız blokta ağrı hissini incelemekteyiz. Birazdan sizden elinizi bu gördüğünüz soğuk su haznesine sokmanızı ve elinizi orada tutabildiğiniz kadar tutmanızı isteyeceğim. Bir süre sonra eliniz ağrımaya başlayabilir. Fakat, lütfen elinizi artık dayanamayacak hale gelene kadar soğuk sudan çıkartmayın. Bu prosedür tamamen güvenlidir ve birçok araştırmada kullanılmaktadır. Elinizi şu noktaya kadar (bilekteki ikinci çizgi) avuç içiniz yukarı bakacak şekilde suya sokacaksınız. Suyunu içindeyken, elinizi rahat bir şekilde tutun fakat lütfen parmaklarınız kapatmayın veya oynatmayın. Ayrıca elinizi suya soktuktan sonra, ilk ağrı hissettiğiniz anı, bana "**şimdi**" diyerek belirtin. Elinizi suya soktuktan sonra, ağrımaya başlasa bile elinizi suyun içinde tutabildiğiniz kadar tutun. Fakat ağrı çok rahatsız edici olmaya başlarsa, elinizi çekebilirsiniz. İlk ağrı hissettiğiniz an ve elinizi sudan çıkardığınız an size duyduğunuz ağrıyı 1 ve 10 arasında puanlamanızı isteyeceğim. 1 çok hafif, 10 ise dayanılamayacak düzeyde ağrıya karşılık geliyor. Lütfen ilk ağrı hissettiğiniz anı bana "**şimdi**" diyerek bildirmeyi unutmayın ve elinizi suda tutabildiğiniz kadar tuttuktan sonra çıkartın. Prosedürle ilgili herhangi bir sorunuz varsa şimdi sorabilirsiniz."

YÖNERGE 3) *"*Teşekkürler. Şimdiki aşamada size bir nöropsikolojik test uygulayacağım, üniversite seviyesindeki katılımcılar bu testi kolaylıkla geçebiliyor, zorlanacağınızı sanmıyorum. Önünüzde bu dört kart kümesi olacak. Size vereceğim kart destesini üzerlerinde bulunan resimlere göre kategorize etmenizi isteyeceğim. Kartların her biri farklı sayıda ve renkte şekiller içeriyor. Size verdiğim destedeki kartları teker teker alarak hangi kümeye ait olduğunu belirlemeniz gerekiyor. Doğru cevap bir kurala göre belirleniyor, fakat kuralın ne olduğunu bilmeyeceksiniz. Ben size her kartta "doğru" ya da "yanlış" cevabı vereceğim. Devam ettikçe size söylemeden kuralı değiştirebilirim, yeni kuralı en kısa sürede öğrenmenizi ve buna göre cevaplarınızı şekillendirmenizi bekliyorum. Cevap vermek için istediğiniz kadar düşünebilirsiniz. Destede 64 kart var, 20 tanesine cevap vermeniz gerekiyor, sonrasında istediğiniz kadar devam edebilir ya da bırakabilirsiniz. Prosedürle ilgili herhangi bir sorunuz varsa şimdi sorabilirsiniz."

YÖNERGE 4) Teşekkürler. Şimdi elinizi bir kez daha bileğinize kadar suya sokmanızı isteyeceğim. Elinizi şu noktaya kadar (bilekteki ikinci çizgi) avuç içiniz yukarı bakacak şekilde suya sokacaksınız. Suyun içindeyken, elinizi rahat bir şekilde tutun fakat lütfen parmaklarınız kapatmayın veya oynatmayın. Ayrıca elinizi suya soktuktan sonra, ilk ağrı hissettiğiniz anı, bana "**şimdi**" diyerek belirtin. Elinizi suya soktuktan sonra, ağrımaya başlasa bile elinizi suyun içinde tutabildiğiniz kadar tutun. Fakat ağrı çok rahatsız edici olmaya başlarsa, elinizi çekebilirsiniz. İlk ağrı hissettiğiniz ve elinizi çıkardığınız anlarda hissettiğini ağrıyı 1 ve 10 arasında puanlamanızı isteyeceğim. Lütfen ilk ağrı hissettiğiniz anı bana bildirmeyi unutmayın ve elinizi suda tutabildiğiniz kadar tuttuktan sonra çıkartın. Prosedürle ilgili herhangi bir sorunuz varsa şimdi sorabilirsiniz.

APPENDIX E: DEMOGRAPHIC FORM

1. Yaşınız:
_____

2. Bölümünüz ve sınıfınız:
_____

3. Cinsiyetiniz
o Kadın
o Erkek
o Diğer: _____

4. Medeni durumunuz:
o Bekâr
o Evli

5. Kendinizi hangi sosyo-ekonomik gruba dâhil hissediyorsunuz?
o Düşük
o Düşük-orta
o Orta
o Yüksek-orta
o Yüksek

6. Şu anda psikolojik bir rahatsızlık sebebiyle tedavi görüyor musunuz?

o Hayır
o Evet (Lütfen aldığınız bir tanı var ise belirtiniz):
_____

7. Şu anda psikolojik bir rahatsızlık sebebiyle tedavi görüyorsanız ne tür bir tedavi görmektesiniz?

o Psikoterapi
o İlaç tedavisi
o Grup terapisi
o Diğer (Lütfen belirtiniz): _____

8. Lütfen aşağıdaki ifadeye ne derece katıldığınızı yandaki ölçek üzerinde belirtiniz.

	Kesinlikle katılmıyorum	Katılmıyorum	Fikrim yok/ bilmiyorum	Katılıyorum	Kesinlikle katılıyorum
Karşılaştığım sorunlarla baş etme becerilerimden genel olarak memnunum.	o	o	o	o	o

9. Aşağıdaki aktivitelerde ağırlıklı olarak hangi elinizi kullanıyorsunuz?

	El tercihi		
	Sol	Sağ	İkisini de
Yazmak	○	◉	○
Resim çizmek	○	○	○
Bir şeyi yerden alıp fırlatmak	○	○	○
Makas kullanmak	○	○	○
Diş fırçalamak	○	○	○
Tenis raketi tutmak	○	○	○

APPENDIX F: INVENTORY OF STATEMENTS ABOUT SELF-INJURY

BÖLÜM I: DAVRANIŞLAR

Aşağıdaki anket çeşitli kendini yaralama davranışlarını sorgulamaktadır. **Lütfen yalnızca belirtilen davranışı**

kasıtlı olarak (isteyerek, amaçlı),

kendinize zarar vermek amacıyla ve

intihar amacı olmaksızın

gerçekleştirmiş iseniz işaretleyiniz.

1. **Lütfen aşağıdaki maddeleri kasıtlı olarak yaşamınız boyunca kaç kez yaptığınızı belirtiniz (0, 5, 10, 100 vb.):**

Kesme	…….	Tırnaklama (deriyi kanatacak kadar)	……..
Isırma	…….	Kendini sert bir yere çarpma veya kendine vurma	……..
Yakma	…….	Yaranın iyileşmesine engel olma (ör: kabuklarını koparma)	…….
Cilde bir harf/yazı şekil kazıma	…….	Cildi sert bir yüzeye sürtme	……..
Çimdikleme	…….	Kendine iğne batırma	……..
Saç kopartma (kökünden)	…….	Tehlikeli/zararlı madde içme/ yutma	……..
		Diğer	…….

Önemli: Eğer yukarıda belirtilen davranışlardan bir ya da daha fazlasını gerçekleştirmiş iseniz anketin kalan kısmını doldurunuz. Eğer belirtilen davranışlardan hiç birisini gerçekleştirmemiş iseniz anketin kalan kısmını doldurmayınız ve formu araştırmacıya veriniz.

2.Eğer temel bir kendine zarar verme davranışınız varsa birinci sayfadaki bu tür davranış(lar)ı daire içine alınız.

3.Hangi yaşta?

İlk kez kendinize zarar verdiniz? .....

En son ne zaman kendinize zarar verdiniz? (yaklaşık gün/ay/yıl) …….

4.Kendinize zarar verme davranışı sırasında fiziksel acı hisseder misiniz?

Lütfen daire içine alınız EVET BAZEN HAYIR

5.Kendinize zarar verme davranışı sırasında yalnız mı olursunuz?

Lütfen daire içine alınız EVET BAZEN HAYIR

6.Tipik olarak kendinize zarar verme dürtüsü oluştuktan ne kadar süre sonra eylemi gerçekleştirirsiniz?

Lütfen daire içine alınız

<1 saat	1-3 saat	3-6 saat
6-12 saat	12-24 saat	>1gün

7.Kendinize zarar verme davranışınızı sona erdirmek ister misiniz / istediniz mi?

Lütfen daire içine alınız EVET HAYIR

BÖLÜM II: İŞLEVLER

Yönerge:

Bu anket intihar amaçlı olamayan kendine zarar verme davranışı deneyimini daha iyi anlamamızı sağlamaya yönelik oluşturulmuştur. Aşağıda sizin kendinize zarar verme deneyiminizle ilişkili olabilecek ya da olmayabilecek durumlar bir liste olarak verilmiştir. Lütfen sizin için en uygun olan durumları belirleyiniz.

- Belirtilen durum size **hiç uygun değilse** "0" işaretleyiniz
- Belirtilen durum size **kısmen uygunsa** "1" işaretleyiniz
- Belirtilen durum size **çok uygunsa** "2" işaretleyiniz

“Kendime zarar verdiğimde, …	**Yanıt**		
1….kendimi sakinleşmiş hissederim	0	1	2
2….kendim ve başkaları arasında sınır çizmiş olurum	0	1	2
3….kendimi cezalandırmış olurum	0	1	2
4…kendime özen göstermek için bir yol bulmuş olurum (yaramla ilgilenerek)	0	1	2
5… uyuşukluk hissinden kurtulmak için acı oluşturmuş olurum	0	1	2
6….intihar girişimi dürtümden kaçınmış olurum	0	1	2
7….heyecan ve coşku yaşatan bir şey yapmış olurum	0	1	2
8….akranlarımla aramda bir bağ kurulmuş olur	0	1	2
9….başkalarının hissettiğim duygusal acının boyutunu anlamalarını sağlamış olurum	0	1	2
10…acıya dayanıklılığımı görmüş olurum	0	1	2
11…kendimi berbat hissettiğime dair bir işaret bırakmış olurum	0	1	2
12…birisinden hıncımı çıkartmış olurum	0	1	2
13…kendi kendime yeterliliğimi kanıtlamış olurum	0	1	2
14…içimde biriken duygusal baskıdan kurtulmuş olurum	0	1	2
15…başkalarından ayrı olduğumu göstermiş olurum	0	1	2
16…değersiz veya akılsızlığımdan dolayı kendime duyduğum öfkeyi göstermiş olurum	0	1	2
17…duygusal stresime kıyasla baş etmesi daha kolay olan bir fiziksel yara yaratmış olurum	0	1	2
18…fiziksel acı bile olsa bir şeyler hissetmiş olurum (hiçbir şey hissetmemektense)	0	1	2
19…İntihar düşüncelerime gerçekten intihar girişiminde bulunmak yerine başka	0	1	2
şekilde yanıt vermiş olurum			
20…uç bir şey yaparak kendimi veya başkalarını eğlendirmiş olurum	0	1	2
21…başkalarına uyum sağlamış olurum	0	1	2
22…başkalarından ilgi ya da yardım istemiş olurum	0	1	2
23…güçlü veya dayanıklı olduğumu göstermiş olurum	0	1	2
24…duygusal acımın gerçekliğini kendime göstermiş olurum	0	1	2
25…başkalarından intikam almış olurum	0	1	2
26…başkalarının yardımına bel bağlamadığımı göstermiş olurum	0	1	2
27…kaygı, hüsran, öfke ve diğer bunaltıcı hislerim hafiflemiş olur	0	1	2
28…kendim ve başkaları arasında bariyer inşa etmiş olurum	0	1	2
29…kendimden hoşnut olmamam ya da kendimden iğrenmeme bir yanıt vermiş olurum	0	1	2
30…kendimi yaramın iyileşmesine odaklarım, bu; benim için sevindirici	0	1	2
ya da tatmin edici olabilir			
31…kendimi gerçek hissetmediğimde hala hayatta olduğumdan emin olmuş olurum	0	1	2
33…sınırlarımı zorlamış olurum (paraşütle atlamak ya da uçta bir şey yapmak gibi	0	1	2

34…arkadaşlarım ve sevdiklerimle aramda bir dostluk ya da akrabalık bağı simgesi oluşturmuş olurum	0	1	2
35…sevdiğim birinin benden ayrılmasına ya da beni terk etmesine engel olmuş olurum	0	1	2
36…fiziksel acıya katlanabileceğimi kanıtlamış olurum	0	1	2
37…yaşadığım duygusal stresi anlamlandırmış olurum	0	1	2
38…bana yakın birini incitmeye çalışmış olurum	0	1	2
39… özerkliğimi / bağımsızlığımı ortaya koymuş olurum	0	1	2

(İsteğe bağlı) Aşağıdaki boşluğa, sizin için yukarıda sıralanmış olanlardan daha doğru durumlar var ise bir liste halinde yazınız:

(İsteğe bağlı) Aşağıdaki boşluğa, size uymasa bile yukarıda sıralanmış olanlara eklenmesi gerektiğini düşündüğünüz durumlar var ise bir liste halinde yazınız:

APPENDIX G: DIFFICULTIES IN EMOTION REGULATION SCALE

Aşağıdaki cümlelerin size ne sıklıkla uyduğunu yanlarında belirtilen 5 dereceli ölçek üzerinde değerlendiriniz. Her bir cümlenin yanındaki 5 noktalı ölçekten, size uygunluk yüzdesini de dikkate alarak bir tek maddeyi işaretleyiniz.

1----------2----------3----------4----------5

Neredeyse hiçbir zaman	Bazen	Yaklaşık yarı yarıya	Çoğu zaman	Neredeyse her zaman
(%0-%10)	(%11-%35)	(%36-%65)	(%66%90)	(%91-%100)

	Neredeyse hiçbir zaman	**Bazen**	**Yaklaşık yarı yarıya**	**Çoğu zaman**	**Neredeyse her zaman**
1. Ne hissettiğim konusunda netimdir.	o	o	o	o	o
2. Ne hissettiğimi dikkate alırım.	o	o	o	o	o
3. Duygularım bana dayanılmaz ve kontrolsüz gelir.	o	o	o	o	o
4. Ne hissettiğim konusunda hiçbir fikrim yoktur.	o	o	o	o	o
5. Duygularıma bir anlam vermekte zorlanırım.	o	o	o	o	o
6. Ne hissettiğime dikkat ederim.	o	o	o	o	o
7. Ne hissettiğimi tam olarak bilirim.	o	o	o	o	o
8. Ne hissettiğimi önemserim.	o	o	o	o	o
9. Ne hissettiğim konusunda karmaşa yaşarım.	o	o	o	o	o
10. Kendimi kötü hissetmeyi kabullenebilirim.	o	o	o	o	o
11. Kendimi kötü hissettiğimde böyle hissettiğim için kendime kızarım.	o	o	o	o	o

12. Kendimi kötü hissettiğim için utanırım.	o	o	o	o	o
13. Kendimi kötü hissettiğimde işlerimi bitirmekte zorlanırım.	o	o	o	o	o
14. Kendimi kötü hissettiğimde kontrolden çıkarım.	o	o	o	o	o
15. Kendimi kötü hissettiğimde uzun süre böyle kalacağıma inanırım.	o	o	o	o	o
16. Kendimi kötü hissetmenin yoğun depresif duyguyla sonuçlanacağına inanırım.	o	o	o	o	o
17. Kendimi kötü hissettiğimde duygularımın yerinde ve önemli olduğuna inanırım.	o	o	o	o	o
18. Kendimi kötü hissederken başka şeylere odaklanmakta zorlanırım.	o	o	o	o	o
19. Kendimi kötü hissederken kontrolden çıktığım duygusu yaşarım.	o	o	o	o	o
20. Kendimi kötü hissediyor olsam da çalışmayı sürdürebilirim.	o	o	o	o	o
21. Kendimi kötü hissettiğimde bu duygumdan dolayı kendimden utanırım.	o	o	o	o	o
22. Kendimi kötü hissettiğimde eninde sonunda kendimi daha iyi hissetmenin bir yolunu bulacağımı bilirim.	o	o	o	o	o
23. Kendimi kötü hissettiğimde zayıf biri olduğum duygusuna kapılırım.	o	o	o	o	o
24. Kendimi kötü hissettiğimde de davranışlarım kontrolüm altındadır.	o	o	o	o	o
25. Kendimi kötü hissettiğim için suçluluk duyarım.	o	o	o	o	o
26. Kendimi kötü hissettiğimde konsantre olmakta zorlanırım.	o	o	o	o	o
27. Kendimi kötü hissettiğimde davranışlarımı kontrol etmekte zorlanırım.	o	o	o	o	o

28. Kendimi kötü hissettiğimde daha iyi hissetmem için yapabileceğim hiçbir şey olmadığına inanırım.	o	o	o	o	o
29. Kendimi kötü hissettiğimde böyle hissettiğim için kendimden rahatsız olurum.	o	o	o	o	o
30. Kendimi kötü hissettiğimde kendimle ilgili olarak çok fazla endişelenmeye başlarım.	o	o	o	o	o
31. Kendimi kötü hissettiğimde kendimi bu duyguya bırakmaktan başka çıkar yol olmadığına inanırım.	o	o	o	o	o
32. Kendimi kötü hissettiğimde davranışlarım üzerindeki kontrolümü kaybederim.	o	o	o	o	o
33. Kendimi kötü hissettiğimde başka bir şey düşünmekte zorlanırım.	o	o	o	o	o
34. Kendimi kötü hissettiğimde duygumun gerçekte ne olduğunu anlamak için zaman ayırırım.	o	o	o	o	o
35. Kendimi kötü hissettiğimde kendimi daha iyi hissetmem uzun zaman alır.	o	o	o	o	o
36. Kendimi kötü hissettiğimde duygularım dayanılmaz olur.	o	o	o	o	o

APPENDIX H: LEVELS OF SELF-CRITICISM SCALE

1-Hiç tanımlamıyor.
2-Biraz tanımlıyor.
3-Oldukça iyi tanımlıyor.
4-İyi tanımlıyor.
5-Çok iyi tanımlıyor.

Sizi ne kadar tanımlıyor?

	Hic	Biraz	Oldukca iyi	İyi	Cok iyi
1-Bir işi başaramadığımda çok sinirli olurum.	1	2	3	4	5
2-Bende kişiliğime zarar veren bir aşağılık duygusu var.	1	2	3	4	5
3-Bir işi her zamanki standartlarım ölçüsünde yapamazsam büyük bir hayal kırıklığına uğrarım.	1	2	3	4	5
4-Ne olup biteceğini bilmediğim sosyal ortamlarda genellikle rahatımdır.	1	2	3	4	5
5-Başarısız olduğum zaman kendime çok kızarım.	1	2	3	4	5
6-Diğer insanların benim hakkımda ne düşündüğü konusunda pek zaman harcamam.	1	2	3	4	5
7-Bir işte başarısız olduğumda çok bozulurum.	1	2	3	4	5
8-İnsanlara kişisel zayıflıklarınız konusunda açık olduğunuzda onlar size hala saygı duymaya devam ederler.	1	2	3	4	5
9-Başarısızlık benim için çok acı bir deneyimdir.	1	2	3	4	5
10-İnsanların benim gerçekte nasıl biri olduğumu anlayıp şaşıracakları düşüncesi beni sık sık endişelendirir.	1	2	3	4	5
11- Bir işteki başarısızlık olasılığı beni genellikle kaygılandırmaz.	1	2	3	4	5
12-Benim için önemli olan insanların beni olduğum gibi kabul edeceklerine inanırım.	1	2	3	4	5
13-Başarısız olduğum zaman değerim konusunda şüpheye düşmeye başlarım.	1	2	3	4	5
14-İnsanlara güçsüz olduğunuz yönlerinizi sergilerseniz sizden yararlanmaya çalışırlar.	1	2	3	4	5
15-Bir işi istediğim kadar iyi yapamazsam, kendimi başarısız hissederim.	1	2	3	4	5
16-İnsanlar baba benimle ilgili bir şeyler sorduğu zaman	1	2	3	4	5

genellikle rahatımdır.					
17-Eğer bir konuda başarısız olursam bu beni olumsuz olarak etkilemez.	1	2	3	4	5
18-İnsanların beni çok iyi tanıdıkları zaman bana saygı duymayacaklarından korkarım.	1	2	3	4	5
19-Kendimi sık sık hedeflerime ve amaçlarıma ne kadar ulaştığım konusunda sorgularım.	1	2	3	4	5
20-Nadiren kendimden utanırım.	1	2	3	4	5
21-Açık ve dürüst olmak diğer insanların bana karşı duyduğu saygıyı korumanın en iyi yoludur.	1	2	3	4	5
22-İstediğinizi elde edebilmek için bazen tamamen dürüst **davranmamanız** gerekebilir.	1	2	3	4	5

APPENDIX I: WHITE BEAR THOUGHT SUPPRESSION INVENTORY

Aşağıda bazı düşünce ve davranışlara ilişkin ifadeler yer almaktadır. Lütfen her bir ifadeyi dikkatle okuduktan sonra bu ifadeye ne kadar katıldığınızı yanındaki harflerden uygun olanı yuvarlak içine alarak belirtiniz. Doğru ya da yanlış cevap yoktur. Hiçbir maddeyi boş bırakmamaya özen gösteriniz.

A	B	C	D	E
Kesinlikle Katılmıyorum	Katılmıyorum	Fikrim Yok ya da Bilmiyorum	Katılıyorum	Kesinlikle Katılıyorum

1. Bazı şeyleri düşünmemeyi tercih ederim	A B C D E
2. Bazen düşündüğüm şeyleri neden düşündüğümü merak ederim.	A B C D E
3. Kendimi düşünmekten alıkoyamadığım düşüncelerim var.	A B C D E
4. Aklıma geliveren ve bir türlü kurtulamadığım imgeler/görüntüler var.	A B C D E
5. Dönüp dolaşıp yine aynı şeyi düşünüyorum.	A B C D E
6. Keşke bazı şeyleri düşünmekten vazgeçebilsem	A B C D E
7. Bazen düşüncelerim o kadar hızlı değişiyor ki onları durdurmak istiyorum	A B C D E
8. Her zaman sorunları aklımdan çıkarmaya çalışırım	A B C D E
9. İstemeden birden bire aklıma gelen düşünceler var	A B C D E
10. Düşünmemeye çalıştığım bazı şeyler var.	A B C D E
11. Bazen gerçekten aklımdakileri düşünmekten vazgeçebilsem diyorum.	A B C D E
12. Sık sık kendimi düşüncelerimden uzaklaştıracak şeyler yaparım.	A B C D E
13. Uzaklaşmaya çalıştığım düşüncelerim var	A B C D E
14. Kimseye söylemediğim bir sürü düşüncem var.	A B C D E
15. Bazen bazı düşüncelerin zihnimi meşgul etmesini önlemek için başka şeylerle uğraşırım	A B C D E

APPENDIX J: SELF-COMPASSION SCALE

ZORLUKLAR KARŞISINDA KENDİME GENEL OLARAK NASIL DAVRANIYORUM?

Yanıtlamadan önce her bir ifadeyi dikkatle okuyunuz. Her bir maddenin sağında takip eden ölçeği kullanarak, belirtilen durumda ne kadar sıklıkla hareket ettiğinizi belirtiniz.

	Hemen Hemen Hiçbir Zaman	Nadiren	Arasıra	Çoğu Zaman	Hemen Hemen Her Zaman
	1	**2**	**3**	**4**	**5**
1. Kendimi kötü hissettiğimde, kötü olan her şeye takılma eğilimim vardır.					
2. İşler benim için kötü gittiğinde zorlukların yaşamın bir parçası olduğunu ve herkesin bu zorlukları yaşadığını görebilirim.					
3. Yetersizliklerimi düşünmek kendimi daha yalnız ve dünyadan kopuk hissetmeme neden olur.					
4. Duygusal olarak acı yaşadığım durumlarda kendime sevgiyle yaklaşmaya çalışırım.					
5. Benim için önemli bir şeyde başarısız olduğumda, yetersizlik hisleriyle tükenirim.					
6. Kötü hissettiğimde, dünyada benim gibi kötü hisseden pek çok kişi olduğunu kendi kendime hatırlatırım.					
7. Zor zamanlar geçirdiğimde kendime daha katı (acımasız) olma eğilimindeyim.					
8. Herhangi bir şey beni üzdüğünde hislerimi dengede tutmaya çalışırım.					
9. Kendimi bir şekilde yetersiz hissettiğimde kendi kendime birçok insanın aynı şekilde kendi hakkında yetersizlik duyguları yaşadığını hatırlatmaya çalışırım.					
10. Kişiliğimin sevmediğim yanlarına karşı hoşgörüsüz ve sabırsızım.					
11. Çok sıkıntılıysam, kendime ihtiyacım olan ilgi ve şefkati gösteririm					
12. Kendimi kötü hissettiğimde diğer insanların çoğunun benden mutlu olduğunu düşünme eğilimindeyim.					
13. Acı veren bir şey olduğunda, durumu dengeli bir bakış açısıyla görmeye çalışırım.					

14. Başarısızlıklarımı insan olmanın bir parçası olarak görmeye çalışırım.					
15. Sevmediğim yanlarımı gördüğümde kendi kendimi üzerim.					
16. Benim için önemli bir şeyde başarısız olduğumda, işleri belli bir bakış açısı içerisinde tutmaya çalışırım.					
17. Ben mücadele halindeyken diğer herkesin işlerinin benimkinden kolay gittiğini hissetme eğilimim vardır.					
18. Acı çektiğim zamanlarda, kendime karşı iyiyimdir.					
19. Bir şey beni üzdüğünde, duygusal olarak bunu abartırım.					
20. Acı çektiğim durumlarda kendime karşı bir parça daha soğukkanlı olabilirim.					
21. Kendi kusur ve yetersizliklerime karşı hoşgörülüyümdür.					
22. Acı veren bir şey olduğunda, olayı büyütme eğilimim vardır.					
23. Benim için önemli bir şeyde başarısız olduğumda, başarısızlığın yalnız benim başıma geldiği duygusunu hissetme eğiliminde olurum.					
24. Kişiliğimin sevmediğim yönlerine karşı anlayışlı ve sabırlı olmaya çalışırım.					

APPENDIX K: POSITIVE AND NEGATIVE AFFECT SCHEDULE

Bu ölçek farklı duyguları tanımlayan bir takım sözcükler içermektedir. **GENEL OLARAK** nasıl hissettiğinizi düşünüp her maddeyi okuyun. Uygun cevabı her maddenin yanına ayrılan yere puanları daire içine alarak işaretleyin. Cevaplarınızı verirken aşağıdaki puanları kullanın.

1. **Çok az veya hiç**
2. **Biraz**
3. **Ortalama**
4. **Oldukça**
5. **Çok fazla**

1) ilgili	1……	2…….	3…….	4…….	5…….
2) sıkıntılı	1……	2…….	3…….	4…….	5…….
3) heyecanlı	1……	2…….	3…….	4…….	5…….
4) mutsuz	1……	2…….	3…….	4…….	5…….
5) güçlü	1……	2…….	3…….	4…….	5…….
6) suçlu	1……	2…….	3…….	4…….	5…….
7) ürkmüş	1……	2…….	3…….	4…….	5…….
8) düşmanca	1……	2…….	3…….	4…….	5…….
9) hevesli	1……	2…….	3…….	4…….	5…….
10) gururlu	1……	2…….	3…….	4…….	5…….
11) asabi	1……	2…….	3…….	4…….	5…….
12) uyanık	1……	2…….	3…….	4…….	5…….
13) utanmiş	1……	2…….	3…….	4…….	5…….
14) ilhamli (yaratıcı düşüncelerle dolu)	1……	2…….	3…….	4…….	5…….
15) sinirli	1……	2…….	3…….	4…….	5…….
16) kararlı	1……	2…….	3…….	4…….	5…….
17) dikkatli	1……	2…….	3…….	4…….	5…….
18) tedirgin	1……	2…….	3…….	4…….	5…….
19) aktif	1……	2…….	3…….	4…….	5…….
20) korkmuş	1……	2…….	3…….	4…….	5…….

APPENDIX L: CURRICULUM VITAE

Name, Surname: Ezgi Tuna
E-mail: ezgi.tuna@yahoo.com

EDUCATION

Ph.D.	Middle East Technical University Clinical Psychology	2017
Visiting Graduate Student	State University of New York at Binghamton, United States Clinical Psychology	2011-2012
M.S	Middle East Technical University Clinical Psychology	2012
B.A	Boğaziçi University, Psychology	2008

WORK EXPERIENCE

Year	**Place**	**Enrollment**
2013- Present	Middle East Technical University Department of Psychology	Research Assistant
2012	Ufuk University Department of Psychology	Research Assistant
2010-2011	Middle East Technical University Social Sciences Institute	Research Assistant
2010	Yedirenk Special Education and Rehabilitation Center, Ankara	Psychologist
2009	European School Children Project Yeniden Health and Education Society, Istanbul	School Investigator

PUBLICATIONS IN PEER-REVIEWED JOURNALS

Tuna, E. (2016). Psikoterapide direnci anlamak ve dirençle çalışmak. *Ayna Klinik Psikoloji Dergisi*, *3*(3), 10-25.

Tuna, E. & Bozo, Ö. (2014). Exploring the link between emotional and behavioral dysregulation: A test of the Emotional Cascade Model. *The Journal of General Psychology, 141,* 1-17.

Tuna, E. & Bozo, Ö. (2012). The Cognitive Emotion Regulation Questionnaire: Factor Structure and Psychometric Properties of the Turkish Version. *Journal of Psychopathology and Behavioral Assessment, 34(4),* 564-570.

CONFERENCE PRESENTATIONS

Canel-Çınarbaş, D., Ar, Y., & **Tuna, E.** (August, 2016). Turkish Muslim Religious Healers: A Qualitative Investigation of Hocas and Their Methods. Poster Presentation. *The 23rd Congress of the International Association for Cross-Cultural Psychology*, Nagoya, Japan.

Tuna, E., & Gençöz, T. (September, 2016). A Comparison of Psychological Risk Factors for Non-Suicidal Self-Injury. Poster presentation. *The 46th European Association of Behavioural and Cognitive Therapies Congress*. Stockholm, Sweden.

Tuna, E., & Gençöz, T. (September, 2016). What Differentiates Self-Injurers and Non-Injurers? : Exploring the Role of Emotion Dysregulation. Poster presentation. *The 46th European Association of Behavioural and Cognitive Therapies Congress*, Stockholm, Sweden.

Tuna, E. (July, 2015). An Examination of Cognitive Emotion Regulation Strategies in the Prediction of Excessive Reassurance-Seeking. Oral Presentation. *14th European Congress of Psychology*, Milan, Italy.

Tuna, E. (July, 2014). Attitudes toward Lesbians and Gay Men among Turkish Mental Health Professionals. Oral Presentation. *28th International Congress of Applied Psychology*, Paris, France.

Tuna, E. & Bozo, Ö. (July, 2011). The Unifying Role of Ruminative Processes in Behavioral Dysregulation: A Test of the Emotional Cascade Model. Poster Presentation. *12th European Congress of Psychology*, İstanbul, Türkiye.

Tuna, E. & Bozo, Ö. (2011, July). The Cognitive Emotion Regulation Questionnaire: Factor Structure and Psychometric Properties of the Turkish Version. Poster Presentation. *12th European Congress of Psychology*, Istanbul, Turkey.

Tuna, E. & Otçeken, M. (September, 2008). Bir Madde Bağımlılığını Önleme Projesinin Etkinliği. Oral Presentation, *14th National Psychology Congress*, İstanbul, Türkiye.

Tuna, E., Bozkurt, A., Yalçınöz, B., Bilge, M.T. (April, 2008). Stroop Interference in a Sample of College Women: Weighing Increases Color Naming Latencies. Oral Presentation. *22nd European Federation of Psychology Student Associations Congress*, Vilnius, Lithuania.

Aydın, Z., Kumru, G., Gökçe, A., **Tuna, E**., Köksal, F. (July, 2007). Secondary Conditioning in Japanese Japon Bıldırcınlarında İkincil Koşullanma. Oral Presentation. *12th National Psychology Students Congress*, Lefkosia- North Cyprus.

CLINICAL EXPERIENCE

Year	Enrollment	Place
2013-2016	Psychotherapist	METU Ayna Clinical Psychology Unit
2016	Volunteer Psychologist	Human Rights Association, Ankara
2015-2016	Volunteer Psychologist	The Foundation for Women's Solidarity
2015	Group Psychotherapy Co-Therapist	METU Ayna Clinical Psychology Unit
2014-2015	Clinical Supervisor	METU Department of Psychology
2010	Intern	METU Health Center Psychiatry Unit
2010	Intern	Hacettepe University Hospital Child Psychiatry Unit
2011	Intern	Ankara University Hospital Child Psychiatry Unit

HONORS AND AWARDS

TUBITAK PhD Bursary, October 2014 - present.

Publication Award, Middle East Technical University Social Sciences Institute, 2014.

Scholarship of Success, Boğaziçi University, 2003-2008.

FOREIGN LANGUAGES

Advanced English
TOEFL (IBT) : 112/120

COMPUTER SKILLS

SPSS, EQS, MS OFFICE

APPENDIX M: TURKISH SUMMARY / TÜRKÇE ÖZET

KENDİNE ZARAR VERME DAVRANIŞINI ANLAMAK: KENDİNE ZARAR VEREN VE VERMEYENLERİ BİRBİRİNDEN AYIRAN PSİKOLOJİK VE PSİKOFİZYOLOJİK FAKTÖRLER

1. Giriş

Kendine zarar verme davranışı (KZVD) kişinin intihar amacı olmaksızın kendi vücut dokusuna kasıtlı ve direkt olarak zarar vermesi olarak tanımlanan, ve oldukça olumsuz etkileri olan bir davranıştır (Nock, 2009). KZVD'yi tanımlamak geniş bir davranış yelpazesini kapsaması, ve birçok klinik ve klinik olmayan duruma eşlik etmesi sebebiyle kolay olmamıştır (Yates, 2004). KZVD vücuda direk olarak zarar veren davranışları kapsamakta ve vücuda zarar veren fakat direkt doku hasarına sebep olmayan davranışlar bu tanım kapsamına girmemektedir. Örneğin, kişi sigara içme, aşırı yeme, madde kullanımı ya da tehlikeli araba kullanma gibi riskli davranışlarda bulunabilir; fakat KZVD'nin aksine bu davranışlar direkt olarak doku hasarına sebep olmadığı için KZVD olarak kabul edilmemektedir. Bunun yanında, doku hasarı içeren fakat toplum tarafından kabul görmüş davranışlar (örn., dövme ve piercing yaptırma) KZVD olarak sayılmamaktadır (Klonsky, 2007a). Benzer şekilde vücutta hasara yol açan fakat kişinin içinde yaşadığı toplum tarafından kabul görmüş dini ritüeller ve geçiş törenleri de kendine zarar verici davranışlar olarak sayılmamaktadır (Walsh, 2005). KZVD tanımındaki bir başka önemli nokta ise bu davranışların "kasıtlı" olması, yani kazara veya amaçsız şekilde yapılmış olmamasıdır. Fakat buradaki kasıt kendi hayatına son verme değildir; ki bu nokta KZVD ve intihar davranışları arasında kesin bir çizgi oluşturur (Klonsky, 2007a).

KZVD toplumda yaygın şekilde görülen ve özellikle de ergen ve genç yetişkinleri tehdit eden bir bozukluktur (Klonsky, Victor, & Saffer, 2014; Sutherland ve ark,, 2014). Birçok kişi için KZVD ergenlikte (Glenn & Klonsky, 2013; Nock, 2010;

Nock & Prinstein, 2004), hatta bazı kişilerde daha da erken yaşlarda başlamaktadır (Nixon & Heath, 2009; Tantam & Huband, 2009). Swannell ve arkadaşları (2014) 119 çalışma sonucunu inceledikten sonar KZVD'nin görülme sıklığını ergenler arasında %17.2, genç erişkinlerde %13.4 ve yetiştinler arasında %5.5 olarak saptamıştır. Klinik örneklemlerde ise bu oranlar ciddi derecede yüksektir. Örneğin psikiyatrik ergen örnekleminde Glenn ve Klonsky (2013) katılımcıların %65'inde KZVD'ye rastlandığını bildirmiştir. Türkiye'de yapılan az sayıdaki çalışmada ise Zoroğlu ve arkadaşları (2003) lise öğrencileri arasında KZVD sıklığını %21.4, Somer ve arkadaşları (2015) ise yaklaşık olarak %30 olarak bulmuştur. Görülme sıklığının cinsiyetlere göre dağılımına bakacak olursak, araştırma sonuçları net bir cinsiyet farkına işaret etmemektedir. Bir grup çalışma kadınlar arasında daha yüksek oranlara işaret ederken (Howe-Martin ve ark., 2012; Plener ve ark., 2009; Ross & Heath, 2002; Sornberger ve ark., 2012; Taliaferro ve ark., 2012; Zetterqvist ve ark., 2013), diğer çalışmalar eşit cinsiyet dağılımına işaret etmektedir (Hilt ve ark., 2008; Lloyd-Richardson ve ark., 2007; Klonsky ve ark., 2003; Klonsky, 2011; Nock ve ark., 2006; Zoroğlu ve ark., 2003). Kendine zarar verme yöntemleri konusunda ise cinsiyetlere göre farklılık olduğu söylenebilir (Sornberger ve ark., 2012).

Yaygın kendine zarar verme davranışları olarak kesme, yakma, tırnaklama, kendine vurma ve vücuttaki yaraların iyileşmesine izin vermeme sayılabilir. Bu yöntemlerin arasında kendine kesme literatürde en sık rapor edilen davranıştır (e.g., Glenn & Klonsky, 2013; Heath ve ark., 2008; Tantam & Huband, 2009; Jacobson ve ark., 2008; Jenkins & Schmitz, 2012). Çoğunlukla kendine zarar veren kişiler birden fazla yöntem kullanmakta (Glenn & Klonsky, 2013; Klonsky, 2011; Whitlock ve ark., 2006; Paivio & McCulloch, 2004) ve vücutlarının birden fazla yerine zarar vermektedirler (Sornberger ve ark., 2012). Araştırmalar KZVD'nin sıkça yapılan ve tekrarlayıcı bir davranış olduğunu göstermektedir (örn., Heath ve ark., 2008). Önemli bir nokta kendine zarar vermeye devam eden ergenlerde bu durum zaman içinde daha ciddi boyuta ulaşmakta; hatta uzun vadede intihar davranışları için bir risk faktörü oluşturmaktadır (Taliaferro ve ark., 2012). Kendine zarar veren kişilerin

çoğu bu davranışı gizli tutmakta (Tantam & Huband, 2009) ve tıbbi yardım almamaktadırlar (Lloyd-Richardson ve ark., 2007; Paivio & McCulloch, 2004).

KZVD birçok psikolojik bozukluk ile birlikte görülür, yani diğer birçok klinik durum ile yüksek birlikte görülme sıklığına (co-morbidity) sahiptir (Jacobson & Gould, 2007). Özellikle dikkati çeken, KZVD'nin intihar davranışları ile birlikte görülme sıklığının yüksek olması (Cheung ve ark., 2013; Glenn & Klonsky, 2013; Joiner ve ark., 2012; Nock ve ark., 2006; Toprak ve ark., 2011) ve şu anki KZVD davranışlarının gelecekteki intihar girişimleri ve tamamlanmış intiharlar için bir risk faktörü oluşturmasıdır (Joiner ve ark., 2012). Geçtiğimiz yıllarda KZVD'nin tanımlanması ve tanısal olarak sınıflanması konusunda sonu gelmeyen tartışmalar yaşanmıştır (Zetterqvist, 2015). Son birkaç yıla kadar KZVD ayrı bir klinik durum olarak sınıflanmamış ve DSM-IV'te sınır kişilik bozukluğunun semptomlarından biri olarak kabul edilmiştir. Bunun en önemli sebebi iki klinik durumun birlikte görülme sıklığının yüksek oluşudur (Glenn & Klonsky, 2013; Nock ve ark., 2006). Buna ragmen, literatürde KZVD'nin ayrı ve sınırda kişilik bozukluğundan bağımsız bir durum olduğuna yönelik güçlü kanıtlar bulunmaktadır (Glenn & Klonsky, 2013; In-Albon ve ark.,2013). Nitekim, KZVD 2013'te DSM'nin beşinci baskısının Kısım 3'üne "daha fazla araştırılması gereken bir durum" olarak eklenerek bağımsız bir statü kazanmıştır. Yakın zamanda yapılan araştırmalar KZVD'nin ayrı bir durum olduğunu destekler niteliktedir (e.g., Bentley ve ark., 2015; Glenn & Klonsky, 2013; In-Albon ve ark., 2013; Selby ve ark., 2012).

KZVD'ye yönelik araştırma sayıları geçtiğimiz yıllar içinde büyük artış göstermiştir. 2006 yılında, kendine zarar verme araştırmaları için uluslararası bir topluluk kurulmuş (International Society for the Study of Self-Injury) ve bu topluluk klinik ve klinik olmayan ortamlarda sıkça rastlanan, fakat akademik yayınlarda oldukça az temsil edilen KZVD'na yönelik çalışmaların artmasını hedeflemiştir. Bununla birlikte, 2013 yılında DSM'nin beşinci baskısına eklenmesiyle bu alanda yapılan çalışmalarda bir artış yaşanmıştır (Dahlström ve ark., 2015). Yapılan çalışmalar genellikle iki önemli araştırma alanına odaklanmaktadır: KZVD için risk faktörleri ve KZVD'nin işlevleri. KZVD ile ilişkili bulunan risk faktörleri uzun bir

liste oluşturacak kadar çoktur. Hem kişilerarası hem de kişiye özel bu değişkenler arasında öz-eleştiri (Xavier ve ark., 2016), yetersiz sosyal destek (Hankin & Abela, 2011), olumsuz duygulanım (Baetens ve ark., 2011), olumsuz çocukluk yaşantıları (Kaess ve ark., 2013) ve duygu düzenlemede güçlükler (Gratz & Chapman, 2007) sayılabilir. Öte yandan, KZVD'nin en sık rapor edilen işlevi olumsuz duygudurumları düzenlemek ve hemen ardından kendini cezalandırmak olarak öne çıkmaktadır (Andover & Morris, 2014; Klonsky, 2007). En azından bir grup kendine zarar veren kişi için ise KZVD'nin yardım arama gibi sosyal pekiştireç işlevleri de olduğu söylenebilir (Nock & Prinstein, 2004).

Yaygın şekilde görülüyor olması ve bariz olumsuz sonuçlarına rağmen, KZVD'nin hala tam olarak anlaşılmamış bir kavram olduğu söylenebilir (Nock & Prinstein, 2005). Günümüzde, KZVD hakkında önceki dönemlere kıyasla daha fazla bilgi sahibi olmamıza rağmen kişilerin birçok alternatif davranış varken neden kendilerine zarar verdiklerini hala tam olarak bilmiyoruz. Bildiklerimizin çoğu ise Batı toplumlarında yapılan çalışmalara dayanıyor ve KZVD Türkiye'de oldukça ihmal edilmiş bir araştırma alanı olarak göze çarpıyor. Bunlara dayanarak, bu çalışmanın genel amacı bir grup Türk genç yetişkinde KZVD'nin sıklığını ve özelliklerini incelemek, ve kendine zarar veren ve vermeyen kişileri birbirinden ayıran psikolojik ve psikofizyolojik değişkenleri incelemektir.

1.1. Kendine Zarar Verme Davranışının İşlevleri

KZVD'nin işlevlerini anlamayı amaçlayan çok sayıda araştırma yapılmıştır. Araştırmalar KZVD'nin birden fazla işleve sahip olduğu ve kişilerin kendilerine zarar verirken birden fazla motivasyona sahip olduğuna işaret etmektedir Klonsky, 2007; Victor ve ark., 2016). Bunun yanında, bazı işlevler belirli gruplar tarafından (örn., ergenler, mahkumlar ya da yatan psikiyatri hastaları gibi) daha sık kullanılabilir; dolayısıyla, sonuçları geniş kitlelere genellerken dikkatli olunmalıdır (Lloyd-Richardson ve ark., 2008).

Bu alanda yapılan en önemli ve en sık atıf alan araştırmalardan biri Klonsky (2007) tarafında gerçekleştirilen meta-analiz çalışmasıdır. Klonsky (2007) 18 çalışmadan derlediği sonuçlarda KZVD'nin hem klinik hem de klinik olmayan örneklemlerde en sık rapor edilen işlevi olarak duygu düzenleme işlevini bulmuştur. Buna göre kendine zarar verilen kişiler KZVD öncesi olumsuz duygudurum yaşamakta, KZVD sonrasında ise olumsuz duygulanımda bir azalma tarif etmektedirler. Bunun yanında, labaratuvar çalışmalarında KZVD benzeri acı veren uygulamalar (örn., soğuk baskı testi) olumsuz uyarılma ve duygulanımı azaltmaktadır. Bu çalışmada öne çıkan ikinci bir işlev ise kendini cezalandırma işlevidir (Klonsky, 2007). Bu bulguları destekler nitelikte, yapılan çalışmalar KZVD'nin çoğunlukla olumsuz duygusal durumlardan kaçınma, kaçma ya da bunları değiştirmek amacıyla yapıldığını göstermektedir (Gratz, 2003; Klonsky ve ark., 2014; Linehan, 1993). Örneğin, laboratuvar çalışmalarında kendine zarar veren katılımcıların acı veren uygulamalar ya da KZVD ile ilişkili imgelerin gösterilmesinden sonra kendine zarar vermeyen kişilere göre daha düşük psikofizyolojik aktivite (deri iletkenliği, kalp atışı gibi) ve olumsuz duygulanımda daha fazla düşüş yaşadıkları rapor edilmiştir (Brain ve ark., 1998, 2002; Haines ve ark., 1995; Weinberg & Klonsky; 2012).

Nock ve Prinstein (2004, 2005) ise KZVD işlevlerini kişiye özel ve kişilerarası olmasına ve pekiştireçin olumlu ve olumsuz olmasına göre dörde ayıran bir model geliştirmiştir. Buna göre KZVD'yi sürdüren dört faktör şu şekilde sıralanabilir: (1) kişiye özel olumsuz pekiştireç (örn., istenmeyen duygunun sonlandırılması), (2) kişiye özel olumlu pekiştireç (örn., duygu veya uyarılmaya sebep olması), (3) kişilerarası olumsuz pekiştireç (örn., hoşa gitmeyen sosyal durumlardan kaçma), (4) kişilerarası olumlu pekiştireç (örn., yardım arama). Bu modeli test eden Nock ve arkadaşları (2010) ergenlerin yaklaşık %65'inin kişiye özel olumsuz pekiştireç işlevini rapor ettiklerini ve en az kişilerarası olumlu pekiştireç işlevinin rapor edildiğini (%3.9) bulmuştur. Dolayısıyla, literatürle tutarlı şekilde olumsuz duygusal durumları sonlandırmak en sık kullanılan KZVD işlevi olarak öne çıkmıştır.

1.2. Kendine Zarar Verme Davranışıyla İlişkili Faktörler

KZVD literatürünün önemli bir kısmı bu duruma sebebiyet veren değişkenleri anlama çabasına adanmıştır. Bu alandaki çalışmaların büyük kısmı ileride oluşacak KZVD'yi yordayan çocukluk değişkenlerini saptamaya odaklanmaktadır (Gratz, 2003). Fakat, KZVD'nin birden fazla faktör tarafından belirlenen oldukça karmaşık bir durum olduğu (Nock, 2010) düşünüldüğünde, onunla ilişkili bulunan değişkenlerin sayıca azımsanamayacak büyüklükte olduğu söylenebilir. Yapılan çalışmaları incelerken dikkat edilmesi gereken önemli bir nokta, çalışmaların çoğunun kesitsel olduğu, dolayısıyla bir sebep-sonuç ilişkisine işaret etmediğidir. Önceki çalışmalarda KZVD ile ilişkili bulunan değişkenler arasında duygusal istismar (Goldstein ve ark., 2009), duygu düzenlemede güçlükler (Wilcox ve ark., 2012), olumsuz atıflama stili (Tatnell et al., 2014), yalnızlık (Glenn & Klonsky, 2013), ruminasyon (Hoff & Muehlenkamp, 2009), bir psikiyatrik bozukluğun varlığı (Nock et al., 2006), problem çözmede güçlükler (Nock & Mendes, 2008), ve sosyal destek azlığı (Muehlenkamp ve ark., 2012) sayılabilir. Fakat, bu çoklu risk faktörleri ve ilişkili değişkenlerin nasıl birlikte hareket ettiği ve ne şekilde KZVD'yi yordadığı bilinmemektedir. Bu tez çalışması kapsamında birçok ilişkili değişken arasından duygu düzenleme güçlükleri, öz-eleştiri, olumlu ve olumsuz duygulanım, düşünceleri bastırma, acı algısı, ve öz-şefkat KZVD ile ilişkileri kapsamında incelenecektir.

Yapılan çalışmalar duygu düzenlemede güçlüklerin KZVD'yi başlatan ve sürdüren değişkenlerin başında geldiğini göstermektedir (Andover & Morris, 2014; Gratz, 2003, 2007; Klonsky, 2007; Linehan, 1993). Çok sayıda araştırma kendine zarar verme geçmişi olan kişilerin olmayan kişilere kıyasla duygusal becerilerde bozukluklar yaşadığını, ve duyguların deneyimlenmesi, ifadesi ve duygulara yönelik farkındalık gibi alanda zorluğa sahip olduğunu bulmuştur (Klonsky & Muehlenkamp, 2007). Bununla birlikte, kendine zarar veren kişilerin stres yaratan durumlara toleranslarının daha düşük olduğu (Anestis, Pennings, Lavender, Tull, & Gratz, 2013) ve duyguları tetikleyen uyaranlara daha hassas olduklarını gösteren

bulgular da vardır (Franklin ve ark., 2013; Nock & Mendes, 2008). Örneğin Nock ve Mendes (2008) yaptıkları laboratuvar çalışmasında kendine zarar verenlerin vermeyenlere göre stress yaratan bir kart eşleme testini daha çabuk bıraktıklarını ve bu test esnasında fizyolojik olarak daha fazla uyarıldıklarını göstermiştir. Bunun aksine, bazı çalışmalar kendine zarar veren ve vermeyen kişilerin duygu düzenlemede birbirlerinden farklılaştıklarını, fakat duygusal tepkisellik (emotional reactivity) alanında farklı olmadıklarını bulmuştur (Davis ve ark., 2014; Zelkowitz ve ark., 2016). Ayrıca, kendine zarar verenlerin istenmeyen düşüncelerini bastırdıkları ve olumsuz düşüncelerden kaçınma eğilimi gösterdikleri de bulgular arasındadır (Rosenthal ve ark., 2005). Örneğin ergenlerde düşünceleri bastırma, KZVD'nin varlığı ve sıklığı ile ilişkili bulunmuştur (Najmi ve ark., 2007). Buna ek olarak kendine zarar veren kişilerin daha sık ve yoğun olumsuz duygulanım yaşadıklarını gösteren çalışmalar bulunmaktadır (Klonsky & Muehlenkamp, 2007). Örneğin, Klonsky ve arkadaşları (2003) olumsuz duygulanımın kendine zarar veren ve vermeyen kişileri ayıran bir değişken olduğunu, fakat bu iki grubun olumlu duygulanım açısından benzer olduğunu bulmuştur. Fakat olumlu duygulanımın KZVD için koruyucu bir faktör olabileceğini öne süren çalışmalar da vardır (Cohen ve ark., 2015). Dolayısıyla, bu konuyu araştıracak daha fazla çalışmaya ihtiyaç olduğu söylenebilir.

KZVD ile ilişkili bulunan bir başka değişken ise öz-eleştiridir. Öz-eleştiri depresyon ve kişilerarası sorunlar gibi çok sayıda psikolojik bozuklukta rol oynayan bir kavram olmakla birlikte (Gilbert ve ark., 2004), kendine zarar veren kişiler arasında da sıklıkla görülmektedir. Kendine zarar veren kişilerin kendini eleştirmeye yatkın oldukları, kendilerine yönelik güçlü öfke veya beğenmeme, hatta iğrenme, duydukları bulunmuştur (Klonsky & Muehlenkamp, 2007; Smith ve ark., 2014). Bu durum kendine zarar vermenin ikinci en önemli işlevi olan kendini cezalandırma ile paralel görünmektedir. Bunun yanında, öz-eleştiri kişilerin neden KZVD sırasında canlarını acıtan uyarana tahammül ettiklerini açıklayabilir. Örneğin, yapılan bir çalışmada öz-eleşirel bilişsel stil acıya toleransın en önemli yordayıcısı olarak

bulunmuştur (Hooley ve ark., 2010). Bu bulgularla tutarlı şekilde, kendine zarar veren kişilerin kendilerine yönelik daha az şefkat duydukları gösterilmiştir (Jiang ve ark., 2016). Fakat öz-şefkat ve KZVD ilişkisini inceleyen çalışma sayısı henüz oldukça azdır.

Son olarak, kendine zarar veren kişilerin KZVD epizodları sırasında çok az acı hissettikleri, hatta bir kısmın hiç acı hissetmediği bulgular arasındadır (Nock & Prinstein, 2005). Bu bulgu, neden diğer kişilerin değil de bazı kişilerin KZVD'de bulunduklarını açıklamakta bize ışık tutabilir. Bu alanda yapılan çalışmalar genellikle deneysel bir deney düzeneği kullanarak KZVD'deki acı verici uyaranlara benzer uyaranlar kullanmakta (örn., soğuk baskı testi, elektrik şoku) ve katılımcılardan ilk acı hissettikleri anı (acı eşiği), acının katlanılmaz olduğu anı (acı toleransı) ve hissettikleri acının derecesini (acının derecesi) belirtmelerini istemektedir. Çok sayıda araştırma kendine zarar veren kişilerin acıya yönelik algılarında bir azalma olduğunu göstermiştir (Franklin ve ark., 2012; Glenn ve ark., 2014; Hooley ve ark., 2010; St. German & Hooley, 2013; Weinberg & Klonsky, 2012). Detaylandırırsak, çalışmalar kendine zarar veren kişilerin acı eşiklerinin yüksek olduğunu (Franklin ve ark., 2012; Glenn ve ark., 2014), acıya daha uzun süre tolerans gösterdiklerini (Franklin ve ark., 2012; Gratz ve ark., 2011; McCoyve ark., 2010; Schoenleber ve ark., 2014) ve acıyı daha düşük derecelendirdiklerini (McCoy ve ark., 2010; Franklin ve ark., 2012; Weinberg & Klonsky, 2012) göstermiştir. Kişilerin acı veren uyaran sırasındaki fizyolojik tepkiselliğine dair çalışma bulguları ise tutarlı değildir. Ayrıca, bu kişilerin neden acı algılarının farklı olduğu konusunda net bilgiler bulunmamaktadır (Hamza ve ark., 2014). Kendine zarar verenlerde KZVD'ye başlamadan önce acı hassasiyetinin düşük olma ihtimali olduğu gibi, kendine zarar verdikçe zaman içinde bu hassasiyetin düşmüş olması da ihtimaller arasındadır (Hooley ve ark., 2010).

1.3. Çalışmanın Amacı ve Hipotezleri

Geçtiğimiz yıllarda KZVD alanındaki araştırmalarda bir artış yaşansa dahi, KZVD hala tam olarak anlaşılmamış bir klinik durumdur (Hooley & St. Germain, 2014). Özellikle Türkiye'de bu konuda yapılan çalışmalar çok az sayıdadır ve var olan çalışmalar çoğunlukla klinik örneklem kullanılarak yapılmıştır. Buna ek olarak Türkiye'de yapılan bir çok çalışmada metodolojik kısıtlılıklar bulunmaktadır. Gençler arasında yaygın göründüğü (Muehlenkamp ve ark., 2012), sağlığı ciddi biçimde tehdit ettiği ve gelecekteki intihar davranışları için de bir risk faktörü olduğu (örn., Cooper ve ark., 2005) düşünüldüğünde KZVD'yi ve altta yatan mekanizmaları anlamak önemlidir. Geçmişteki çalışmaların çoğunluğu geçmişe yönelik ve katılımcıların bildirimlerine dayalı ölçümler kullanmıştır. Bu sebeple, karmaşık, çok değişken tarafından belirlenen ve tek bir gelişimsel yol ile açıklanması mümkün olmayan (Glassman ve ark., 2007) bu davranışı anlamak için kapsamlı ve objektif ölçümleri de içeren çalışmalara ihtiyaç vardır.

Birçok ilişkili değişken arasında, KZVD ile tutarlı biçimde ilişkili bulunan değişenlerden biri duygu düzenlemede güçlükler olmuştur (Andover & Morris, 2014). Yapılan çalışmalar kişilerin olumsuz duygularını düzenleme amacıyla kendilerine zarar veriyor olabileceğini göstermiştir (Klonsky, 2007). Fakat, duygu düzenlemede kullanılabilecek çok sayıda davranış olduğu halde kişilerin diğer alternatifler yerine neden KZVD'nı kullandıkları net olarak bilinmemektedir (Hooley & St. Germain, 2014). Dolayısıyla, bu çalışmada KZVD ile ilgili ilişkili olabilecek başka değişkenler de incelenmiştir. Bunların ilki ampirik olarak KZVD ile ilişkilendirilmiş öz-eleştiridir. Öz-eleştirinin ayrıca KZVD ile çocukluk değişkenleriarasında aracı bir rol üstlendiği de bulunmuştur (Swannell ve ark., 2012). Bunun yanında, kendine zarar veren kişilerin günlük hayatta daha fazla olumsuz duygulanım yaşadıkları bulunmuş, fakat olumlu duygulanım konusunda net bir sonuca ulaşılmamıştır. Ayrıca, KZVD'nda bulunanların ağrı hassasiyetlerinin bulunmayanlara göre daha düşük olduğu bulgular arasındadır (Hamza ve ark., 2014).

Fakat, alanda yapılmış laboratuvar çalışmaları sayıca azdır ve genellikle klinik örneklemlere ya da küçük örneklemlere dayanmaktadır (Hamza ve ark., 2014). Bununla birlikte, ağrı hassasiyeti ve psikolojik değişkenler arasındaki ilişki önceki çalışmalar tarafından ihmal edilmiş görünmektedir (Kirtley ve ark., 2016). Bunlara ek olarak, KZVD ile ilişki olabilecek ve onu sürdürebilecek bir değişken düşünceleri bastırmadır. İstenmeyen düşünceleri bastırma önceki birkaç çalışma tarafından KZVD ile ilişkilendirildiyse de, bu yöndeki bilgiler henüz güçlü değildir. Bu zamana kadar araştırmalar genellikle KZVD için risk faktörlerine odaklanmış ve koruyucu olabilecek faktörler pek sık çalışılmamıştır. Öz-şefkat alanındaki limitli sayıdaki geçmiş çalışmalara dayanarak (Jiang ve ark., 2016), bu değişken de çalışmaya eklenmiştir. Eğer koruyucu rolü desteklenirse, öz-şefkat KZVD'ye yönelik önleme ve tedavi çalışmalarına eklenebilir.

Geçmiş bulgular ve literatürdeki boşluklara dayaranarak bu tez iki ayrı çalışmadan oluşmaktadır. İlk çalışmada geniş bir üniversite öğrencisi örneklemi KZVD açısından taranmış ve katılımcıların duygu düzenlemede güçlükler, öz-eleştiri, öz-şefkat, olumlu ve olumsuz duygulanım, düşünceleri bastırmayı ölçen ölçekleri doldurmaları istenmiştir. Bunu takiben, geniş örneklem arasından Çalışma 2 kriterlerini sağlayan katılımcılar iki gruba ayrılarak (kendine zarar veren ve kontrol) laboratuvara davet edilmiş ve kendilerine objektif testler ve ölçekler uygulanmıştır. Çalışma 2'de katılımcıların soğuk baskı testi (SBT) sırasındaki ağrı hassasiyetleri ve bu hassasiyetin stres yaratan bir kart testi uygulaması sonunda ne şekilde değiştiği incelenmiştir. Ayrıca, katılımcıların kart testi esnasındaki stres toleransları, sübjektif stres seviyeleri ve fizyolojik tepkileri de ölçülmüştür. Kart testini takiben katılımcılar bir kez daha SBT'ye maruz bırakılmış ve sübjektif stres seviyelerinin ve fizyolojik tepkilerinin ağrı uygulaması sonucu nasıl değiştiği araştırılmıştır. Fizyolojik tepkiler, deney boyunca kaydedilen deri iletkenlik seviyeleri aracılığı ile ölçülmüştür.

2. Çalışma 1

Bu çalışmanın amaçları (1) Türkiye'deki üniversite öğrencileri arasında KZVD sıklığı ve özeliklerini, olası cinsiyet farklılıklarını araştırmak, (2) Kendine zarar veren ve vermeyen kişileri duygu düzenlemede zorluklar, öz-eleştiri, öz-şefkat, düşünceleri bastırma, olumlu ve olumsuz duygulanım ve baş etme becerilerinden duyulan doyum değişkenlerinde kıyaslamak, (3) Bu değişkenlerin kendine zarar verme davranışını ne ölçüde yordadıklarını incelemektir.

2.1. Yöntem

2.1.1. Örneklem

Orta Doğu Teknik Üniversitesi (ODTÜ) Psikoloji bölümünden ders almakta olan 649 öğrenci ekstra puan karşılığında KZVD davranışını tespit etmek için taranmıştır. KZVD'nin bu ilk grupta aşırı yaygın biçimde görülmesi (%62.87, n = 408) sebebiyle klinik bir örnekleme yakınlaşmak için KZVD davranışlarını tanımlayacak bazı kriterler oluşturulmuştur. Yaraların iyileşmesine izin vermeme (n = 249, %38,2), kendien vurma (n = 240, %37), çimdikleme (n = 199, %30,7) ve ısırma (n = 188, %28.97) davranışları yüksek frekanslarından (> %25) dolayı klinik anlamlılığı olmayabilecek veya katılımcılar tarafından yanlış anlaşılmış olabilecek davranışlar olarak değerlendirilmiş ve *sadece* bu davranışları rapor eden kişiler KZVD grubundan elenmiştir. Bu durumda KZVD'nin görülme sıklığı % 47.92 (n = 311) olarak belirlenmiştir. Bunların % 67,5 (n = 210)'i kadın ve %32,2 (n = 100)'I erkektir. Kadınlarda görülme sıklığının erkeklere göre daha yüksek olduğu bulunmuştur, $\chi^2(1, N = 646) = 5.03, p < .05$.

Tablo 2.1. *Kendine Zarar Verme Davranışlarının İlk Örneklemdeki Görülme Sıklığı (N = 649).*

Davranış	**N**	**%**
Genel frekans	311	47.92
Yaranın iyileşmesine engel olma	248	38.2
Kendine vurma	240	37
Çimdikleme	199	30.7
Isırma	188	28.97
Saç koparma	130	20
Şekil kazıma	125	19.3
Tırnaklama	123	19
Kesme	88	13.6
İğne batırma	84	12.9
Cildi sert bir yüzeye sürtme	75	11.6
Zehirli madde yutma	52	8
Yakma	36	5.5

Son çalışma örneklemine ulaşmak için daha katı bir kriter konulmuş ve KZVD grubu son bir yılda en az bir daha ciddi KZVD davranışında ya da yaşam boyu en az 10 daha ciddi KZVD bulunan kişiler (n = 211) olarak belirlenmiştir. Kontrol grubu (n = 195) ise yaşam boyu hiç kendine kasıtlı olarak zarar vermemiş kişiler olarak tanımlanmıştır. Örneklemin yaşları 18 ile 45 arasında değişmekte (M = 21.54, SD = 2.57) ve 265'ini kadınlar (% 65,3) ve 139'unu erkekler oluşturmaktadır (%34,2). Katılımcıların özellikleri Tablo 2.2'de özetlenmiştir.

2.1.2. Ölçme

Çalışmada demografik form, Kendine Zarar Verme Davranışı Değerlendirme Envanteri (Klonsky & Glenn, 2009; Klonsky & Olino, 2008), Duygu Düzenleme Güçlüğü Ölçeği (Gratz & Roemer, 2004), Pozitif ve Negatif Duygu Ölçeği (Watson et al., 1988), Öz-Eleştiri Ölçeği (Thompson & Zuroff, 2004), Beyaz Ayı Supresyon Envanteri (Wegner & Zanakos, 1994), Öz-Duyarlılık Ölçeği (Neff, 2003a) ve katılımcıların baş etme becerilerinden duydukları memnuniyeti ölçek için tek bir madde kullanılmıştır.

Table 2.2. *Demografik Değişkenlerin Dağılımı (N = 406)*

Değişkenler	**KZVD (%)**	**Kontrol (%)**	**Toplam (%)**
Cinsiyet			
Erkek	73 (34.6)	66 (34.2)	139 (34.2)
Kadın	138 (65.4)	127 (65.8)	265 (65.3)
Sosyo-ekonomik düzey			
Yüksek	1 (0.5)	2 (1)	3 (0.7)
Orta-Yüksek	44 (20.9)	48 (24.6)	92 (22.7)
Orta	121 (57.3)	114 (58.5)	235 (57.9)
Orta-Düşük	41 (19.4)	30 (15.4)	71 (17.5)
Düşük	4 (1.9)	1 (0.5)	5 (1.2)
Medeni durum			
Bekar	210 (99.5)	192 (98.5)	402 (99)
Evli	1 (0.5)	3 (1.5)	4 (1)
Tedavi Geçmişi			
Evet	21 (10)	14 (7.2)	35 (8.6)
Hayır	190 (90)	181 (92.8)	371 (91.4)

2.3. Çalışma 2 Sonuçları

Öncelikle KZVD ve kontrol grupları demografik değişkenler üzerinde kıyaslanmıştır. İki grubun yaş ortalamaları arasında anlamlı bir fark bulunamamıştır, $t(404) = -.84$, $p > .05$. KZVD'nin kadın ve erkeklere göre dağılımı da farklılık göstermemiştir, $\chi^2(1, N = 406) = 0.93$, $p > .05$.

Ardından katılımcıların ISAS'a verdiği yanıtlar incelenmiştir. KZVD sıklığına bakıldığında, örneklemin %4.7 ($n = 10$)'sinin sadece bir, %19 ($n = 40$)'unun 2 ila 5, %35.5 ($n = 75$)'inin 10 ila 20, ve %40.8 ($n = 86$)'inin 20'den fazla KZVD epizodu rapor ettiği görülmüştür. Her bir KZVD'nin kadın ve erkeklerdeki dağılımına bakıldığında, kendine yakmanın ($\chi^2(4, N = 211) = 13.66$, $p < .01$), tırnaklamanın ($\chi^2(4, N = 211) = 13.37$, $p = 01$) ve iğne batırmanın ($\chi^2(4, N = 211) = 13.96$, $p < .01$) kadınlarda daha yaygın göründüğü bulunmuştur.

Hipotezlerle tutarlı şekilde, kendine zarar verenlerin vermeyenlere göre duygularını düzenlemekte daha fazla güçlük çekmekte, daha fazla öz-eleştiri rapor etmekte, daha fazla olumsuz duygulanım yaşamakta, düşüncelerini daha fazla bastırmaktadırlar. Ayrıca sorunlarla baş etme becerilerinden daha az memnuniyet duymakta ve kendilerine daha az şefkat duymaktadırlar. T-test sonuçları, ortalama değerler ve standart sapmalar Tablo 2.3'de gösterilmiştir.

Tablo 2.3. *T-test Sonuçları*

	KZVD	**Kontrol**	
	Ortamala (SS)	**Ortalama (SS)**	**(df) t-test**
Duygu düzenlemede güçlükler	98.09 (21.58)	80.63 (18.90)	(404) 8.64*
Öz-eleştiri	65.77 (10.94)	57.35 (9.94)	(404) 8.10*
Düşünceleri bastırma	54.70 (10.34)	49.67 (11.48)	(404) 4.64*
Öz-şefkat	65.78 (16.12)	78.98 (16.26)	(404) -8.21*
Baş etme becerilerinden memnuniyet	3.25 (1.08)	3.70 (.82)	(404) -5.37*

* $p < .001$

Not: KZVD = Kendine Zarar Verme Davranışı

Bunlara ek olarak, DERS ve PANAS'ın alt ölçeklerine çoklu varyans analizi uygulanmıştır (Tablo 2.4). Özetle, kendine zarar verenlerin vermeyenlere göre duygu düzenlemenin tüm alt ölçeklerinde daha fazla güçlük yaşadıkları bulunmuştur. Bunun yanında, kendine zarar verenlerin günlük yaşamlarında daha fazla olumsuz duygulanım yaşadıkları; fakat grupların olumlu duygulanım düzeylerinde birbirlerinden ayrışmadıkları görülmüştür. Son olarak, çalışmada kullanılan değişkenliğinin KZVD ve kontrol grubuna üyelikleri hangi derecede yordadığını araştırma üzere lojistik regresyon analizi yapılmıştır. İlk aşamada denkleme cinsiyet değişkeni atılmış ve model anlamlı çıkmamıştır, $\chi 2(1) = 0.01$, $p > .05$, Nagelkerke $R^2 = .00$. İkinci aşamada olumlu ve olumsuz duygulanım

değişkenleri eklenmiş ve model anlamlı bulunmuştur, $\chi^2(2) = 38.71$, $p < .001$, Nagelkerke $R^2 = .12$. Sadece olumsuz duygulanım değişkeninin anlamlı şekilde KZVD ve kontrol gruplarına üyelikleri yordadığı görülmüştür, Wald (1) = 31.30, $p < .001$. Son aşamada, duygu düzenlemede güçlükler, öz-eleştiri, öz-şefkat ve düşünceleri bastırma değişkenleri de denkleme eklenmiş ve istatistik olarak anlamlı bulunmuştur, $\chi^2(4) = 49.33$, $p < .001$, Nagelkerke $R^2 = .26$. Bütün değişkenler denklemdeyken, KZVD ve kontrol gruplarına üyeliği %72 oranında doğru yordamış, ve doğru yordama oranları KZVD grubu için %74.4, kontrol grubu için %69.4 bulunmuştur. Duygu düzenlemede güçlükler (Wald (1) = 8.77, $p < .01$) ve öz-eleştiri (Wald (1) = 6.55, $p = .01$) son denklemde anlamlı değişkenler olarak bulunmuştur. Ayrıca öz-şefkat değişkeninin anlamlılığa yakın düzeyde olduğu saptanmıştır, Wald (1) = 3.47, $p = .06$.

Tablo 2.4. *DERS ve PANAS alt ölçeklerinde Çoklu Varyans Analizi Sonuçları*

	KZVD	**Kontrol**	**Çoklu** ***F* (6,399)**	**Tekli** ***F* (1, 404)**
	Ortalama (SS)	**Ortalama (SS)**		
DERS Alt ölçekleri			13.63**	
Açıklık	12.44 (3.55)	10.64 (3.16)		29.15**
Kabul etmeme	14.99 (5.68)	11.13 (4.60)		55.77**
Amaçlar	17.86 (4.34)	15.75 (4.57)		22.74**
Dürtü	15.94 (5.83)	11.79 (4.50)		63.71**
Stratejiler	21.83 (7.22)	17.25 (6.40)		45.63**
Farkındalık	15.04 (3.46)	14.08 (3.59)		7.54*
	KZVD	**Kontrol**	**Çoklu** ***F* (2,403)**	**Tekli** ***F* (1, 404)**
	Ortalama (SS)	**Ortalama (SS)**		
PANAS Alt ölçekleri			20.12**	
Olumlu duygulanım	32.71 (6.06)	33.25 (5.94)		3.02
Olumsuz duygulanım	25.44 (7.40)	21.01 (6.60)		40.25**

* $p = .01$; ** $p < .001$

Not: DERS: Duygu Düzenleme Güçlükleri Ölçeği; PANAS: Pozitif ve Negatif Duygu Ölçeği

3. Çalışma 2

Bu çalışmanın amaçları: (1) Katılımcıların ağrı hassasiyetleri ve bu hassasiyetin stres yaratan bir kart testi uygulaması sonunda ne şekilde değiştiğini incelemek, (2) Katılımcıların stres toleransları, stres verici uyaran karşısındaki sübjektif stres seviyeleri ve fizyolojik tepkilerini saptamak, (3) Stres düzeyleri artan katılımcıların ağrı verici uyarana maruz kalmalarının ardından sübjektif stres seviyeleri ve

fizyolojik tepkilerinin nasıl değiştiği araştırmak, (4) KZVD'nin işlevlerini belirlemek ve bu işlevlerin çalışma değişkenleriyle ilişkilerini saptamaktır.

3.1. Örneklem

Bu çalışmanın örneklemini, Çalışma 1'e katılan ve Çalışma 2 kriterlerini karşılayan gönüllü 80 (40 kendine zarar veren, 40 kontrol) üniversite öğrencisi oluşturmuştur. Çalışma 2 kriterleri 18 ila 25 yaş arasında olmak, psikiyatrik ilaç kullanmıyor olmak ve ağırlıklı olarak sağ elini kullanıyor olmaktır. Örneklemin ortalama yaşı 21.14 (SS = 1.16)'tür. Toplam 48 kadın (%60) ve 32 erkek (%40) bulunmaktadır (Tablo 3.1).

3.2. Ölçme

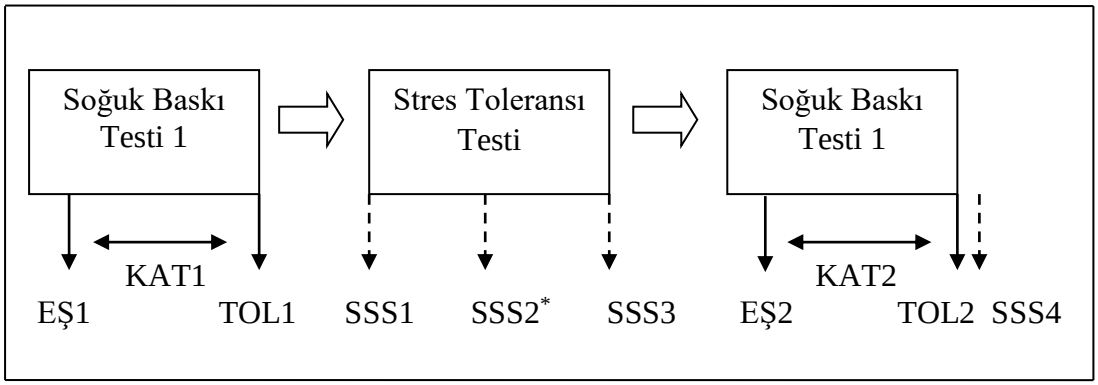
Bu çalışmada hem objektif hem de kişilerin bildirimine dayalı ölçümler kullanılmıştır. Katılımcıların ağrıya verdikleri tepkiler (ağrı eşiği, toleransı, ağrı şiddeti puanlamaları ve ağrıya katlanma süreleri) soğuk baskı testi ile ölçülmüştür. Fizyolojik tepkileri deri iletkenlik seviyesi ölçümü ile tespit edilmiştir. Katılımcıların strese toleransları Wisconsin Kart Eşleme Testi materyallerinin kullanılması ise oluşturulan Strese Tolerans Testi (STS; Nock & Mendes, 2008) isimli kart testi ile ölçülmüştür. Kullanılan ölçekler ise demografik form, ISAS (Klonsky & Glenn, 2009; Klonsky & Olino, 2008), DERS (Gratz & Roemer, 2004) ve SCS (Neff, 2003a)'dir. Ayrıca, katılımcıların baş etme becerilerinden duydukları memnuniyeti ölçen tek bir madde kullanılmıştır. Son olarak, subjektif stress seviyesini (SSS) ölçmek amacıyla katılımcıların ne kadar sıkıntılı ve rahat hissettiklerini 0 ila 100 arasında kodlayacakları iki madde oluşturulmuştur.

Tablo 3.1. Demografik Değişkenlerin Dağılımı

Değişkenler	**KZVD (%)**	**Kontrol (%)**	**Toplam (%)**
Cinsiyet			
Erkek	16 (40)	16 (40)	32 (40)
Kadın	24 (60)	24 (60)	48 (60)
Sosyo-ekonomik düzey			
Yüksek	1 (2.5)	1 (2.5)	2 (2.5)
Orta-Yüksek	9 (22.5)	6 (15)	15 (18.8)
Orta	22 (55)	28 (70)	50 (62.5)
Orta-Düşük	6 (15)	5 (12.5)	11 (13.8)
Düşük	2 (5)	0	2 (2.5)
Medeni durum			
Bekar	40 (100)	40 (100)	80 (100)
Evli	0 (0)	0 (0)	0 (0)
Tedavi Geçmişi			
Var	0 (0)	1 (2.5)	1 (1.3)
Yok	40 (100)	39 (97.5)	79 (98.8)

3.3. Prosedür

Çalışmada ilk olarak katılımcılara soğuk baskı testi uygulanarak ağrıyla ilgili değişkenler ölçülmüştür. Kişilerin ilk ağrı duydukları an, ellerini sudan çektikleri an ve bu iki noktada hissettikleri ağrının şiddeti kaydedilmiştir. Ardından katılımcılara STS uygulanarak, ilk üç kart ve 11. Kart haricinde bütün kartlara verdikleri yanıtlara kasıtlı olarak "yanlış" cevabı verilerek stresli bir durum oluşturulmuştur. Katılımcılara destedeki 64 kartın en az 20'sine cevap vermeleri gerektiği, 20. Karttan sonra ise istedikleri kadar devam edebilecekleri, istedikleri noktada ise bırakabilecekleri söylenmiştir.



Figür 3.1. Çalışma-2 Prosedürü
Not: EŞ: Ağrı eşiği; TOL: Ağrı Toleransı; KAT: Ağrıya katlanma; SSS: Subjektif stress seviyesi; *Stres Tolerası Testi'nin 20. kartı

Kişilerin 20. Karttan sonra devam ettikleri kart sayısı strese tolerans ölçümleri olarak alınmıştır. Bu testin başında, 20. Kartta ve sonun SSS ölçümü alınmıştır. Ardından katılımcılar tekrar soğuk baskı testine maruz bırakılmış ve test sonunda tekrar SSS ölçümü alınmıştır. Bütün prosedür esnasında deri iletkenlik seviyeleri sol ele bağlanan cihazla ölçülmüştür.

3.4. Çalışma 2 Sonuçları

Öncelikle katılımcıların ISAS'a verdikleri cevaplar incelendi. En sık rapor edilen KZVD davranışının yaraların iyileşmesine izin vermemek (n = 32; %80), kendine vurmak (*n* = 29, %72.5), ve ısırmak (n = 29, %72.5), olduğu; en az rapor edilen davranışların ise tehlikeli maddeleri yutmak (*n* = 7, %15.4), yakmak (*n* = 11, %27.5) ve cildini sert bir yüzeye sürtmek (*n* = 13, %32.5) olduğu bulundu. Kendine zarar veren kişilerin büyük çoğunluğunun en az 20 KZVD epizodu rapor ettipi görüldü (%87,5, *n* = 35). KZVD'ye ortalama başlama yaşı 10.85 (orta nokta = 12) olarak bulundu. KZVD'ye erken başlayanların (<12; *m* = 30.94, *sd* = 20.18) daha sonra başlayanlara göre (*m* = 18.59, *sd* = 8.80) soğuk baskı testi-2'de daha yüksek ağrı eşiğine sahip oldukları bulundu, $t(31) = 2.30$, $p < .05$.

KZVD grubunun çoğunluğu KZVD sırasında az da olsa ağrı hissettiklerini (%92,5, *n* = 37) ve KZVD ile ilgili dürtü ile davranış arasında bir saatten az bir zaman dilimi olduğunu (84,6%; *n* = 33), bu davranışı her zaman ya da çoğu zaman yalnızken gerçekleştirdiklerini (%94,9, *n* = 37) ve KZVD'yi sonlandırmak istediklerini (% 66,7, *n* = 26) belirtti.

KZVD'nin işlevlerine bakıldığında, en sık rapor edilen işlevin duyguları düzenleme işlevi (%100, *n* = 40) olduğu, bu işlevi sıkıntıyı işaretleme (85%, *n* = 34) ve kendini cezalandırma işlevlerinin (82,5%, *n* = 33) takip ettiği belirlendi. Kendine zarar veren kişilerin kişiye özel işlevleri (*n* = 2.37, *ss* = 1.35) kişilerarası işlevlere (*n* = 1.28, *ss* = 0.98), göre daha fazla rapor ettikleri görüldü, $t(39) = 5.75$, $p < .001$.

3.4.1. Ağrı Algısı Analizleri

Ağrı analizlerinin soğuk baskı testi (SBT) 1 ve 2 ile gruplar arasındaki değişimini incelemek için toplam beş adet 2 (grup) x 2 (zaman) ANOVA analizi yapılmıştır. Bu analizlerden elde edilen veriler, ağrı eşiği bağımlı değişkeni için zaman değişkenin anlamlı olduğunu, yani SBT-2'deki ağrı eşiğinin SBT-1'e göre daha düşük olduğunu göstermiştir, $F(1, 78) = 5.96$, $p < .05$. Grup tipi (KZVD ve kontrol) ve etkileşim ise anlamlı bulunmamıştır. Ağrı toleransı ($F(1, 77) = 13.23$, $p < .001$) ve ağrıya katlanma ($F(1, 78) = 5.31$, $p < .05$) değişkenlerinde ise, grup tipi anlamlı çıkmış, diğer bir deyişle KZVD grubunun zaman değişkeni hariç tutulduğunda kontrol grubuna göre daha yüksek ağrı toleransı ve ağrıya katlanmaya sahip olduğu bulunmuştur. Zaman ve etkişileşim ana etkileri ise anlamlı bulunmamıştır. Ağrı şiddeti puanlamalarına dair analizlerde ise hem ağrı eşiği hem de ağrı toleransı noktalarında zaman ve grup ana etkileri ile etkileşim ana etkisi anlamlı bulunmamıştır.

3.4.2. Stres ve Deri İletkenlik Seviyesi Analizleri

İlk olarak grupların başlangıç deri iletkenlik seviyeleri (DİS) kıyaslanmış ve farklı bulunmamıştır, $t(74) = -0.87$, $p > .05$. Grupların SBT-1 ($t(73) = -1.23$) ve SBT-2 ($t(75) = -1.49$)'deki DİS'leri kıyaslanmış ve farklılık bulunmamıştır, $p > .05$.

Kendine zarar veren ve vermeyenlerin kart testinde devam ettikleri kart sayıları arasında anlamlı bir fark bulunamamıştır, $t(78) = 0.84$, $p > .05$. Katılımcıların kart testinden önce ve 20. Karttaki SSS 2 (grup) x 2 (zaman) ANOVA ile incelenmiş, ve gruba bakılmaksızın katılımcılarda başlangıç ile 20. kart arasında bir fark bulunmuş; yani SSS'de bir artış gözlemlenmiştir, $F(1, 77) = 63.06$, $p < .001$. Grup ana etkisi de anlamlı bulunmuştur; $F(1, 77) = 13.23$, $p < .001$. Yani zamana bakılmaksızın KZVD grubunun kontrol grubuna göre daha fazla stress rapor ettiği görülmüştür. İki bağımsız değişken arasındaki etkileşim de anlamlı bulunmuştur, $F(1, 77) = 4.50$, $p < .05$. Beklendiği gibi kart testinin etkileri KZVD grubu için daha fazla bir stress artışına sebep olmuştur. Ayrıca, KZVD grubunun kart testi sırasında daha fazla fizyolojik uyarılma yaşayacağı beklenmiş, fakat tüm kart testi ($t(74) = -1.41$) ve 20. Karta kadar ($t(75) = -1.02$) olan DİS ortalamaları kıyaslandığında anlamlı bir fark bulunmamıştır, $p > .05$. Bunlara ek olarak, grup tipi ve kart testinin DİS üzerine etkisini incelemek amacıyla 2 (grup) x 2 (zaman) ANOVA kullanılmış ve grup tipine bakılmaksızın kart testi sonucu DİS'lerde bir artış görülmüştür, $F(1, 72) = 21.48$, $p < .001$. Fakat grup ana etkisi ile etkileşim anlamlı bulunmamıştır. Diğer bir deyişle, gruplar zamana bakılmaksızın DİS'lerinde birbirinden farklılaşmamıştır.

Çalışmanın amaçlarından biri de kart testinden sonra SSS yükselen katılımcıların soğuk baskı testi karşısında nasıl etkileneceklerini ve olası grup farklarını anlamaktır. Bu sebeple 2 (grup) x 2 (zaman) ANOVA ile SBT-2'den önce ve sonra katılımcıların SSS'leri ve DİS'leri incelenmiş ve beklendiği gibi grup türüne bakılmaksızın ağrı uygulaması sonrası katılımcıların SSS'nin düştüğü bulunmuştur, $F(1, 77) = 8.70$, $p < .01$ Ayrıca zamana bakılmaksızın KZVD grubunun daha fazla SSS rapor ettiği görülmüştür, $F(1, 77) = 9.53$, $p < .01$. Etkileşim ise anlamlı bulunmamıştır. DİS analizlerinde ise benzer şekilde grup tipine bakılmaksızın DİS

seviyelerinin düştüğü bulunmuştur, F (1, 72) = 78.91, p < .001. Fakat grup ana etkisi ile etkileşim anlamlı bulunmamıştır.

4. Tartışma

Tartışma bulguları, KZVD'nin bu örneklemle oldukça yaygın ve tekrarlayan bir davranış olduğunu göstermiştir. Bu çalışmada KZVD oranı önceki çalışmalara kıyasla daha yüksek bulunmuştur. Bunun sebepleri arasında çalışmaya katılanların bunun KZVD çalışması olduğunu bilmesi, dolayısıyla çalışmaya benzer deneyim yaşayan kişilerin gönüllü olmuş olabileceği ya da KZVD'nin ölçümü esnasında davranış listesinin kullanılmış olması sayılabilir. Önceki çalışmalar evet-hayır sorularına kıyasla davranış listelerinin daha yüksek frekanslara yol açtığını göstermiştir (Muehlenkamp ve ark., 2012).

KZVD özellikleri genel olarak literatürle tutarlı bulunmuştur. KZVD'ye başlama yaşı yaklaşık olarak 11 yaş olarak bulunmuştur ve geçmişteki birçok çalışmaya göre daha erken olduğu dikkat çekmektedir. En sık rastlanan KZVD yaraların iyileşmesine izin vermemedir; fakat her bir KZVD yönteminin klinik anlamlılığı ve geçerliliği henüz bilinmediği için gelecekte yapılacak araştırmalarda çalışılması önemli bir alandır. KZVD yöntemleri haricinde cinsiyet farkına rastlanmamıştır; gelecekteki çalışmaların olası cinsiyet farklarını ve bu farkların sebeplerini incelemesi iyi olabilir.

Önceki çalışmalarla tutarlı biçimde, kendine zarar veren kişilerin vermeyenlere kıyasla ağrıya daha uzun süre tahammül ettikleri, duygularını düzenlemede daha fazla zorluk yaşadıkları, düşüncelerini daha fazla bastırdıkları, kendilerini daha fazla eleştirdikleri ve kendilerine daha az şefkat duydukları, daha fazla olumsuz duygu yaşadıkları, ve baş etme becerilerinden daha az memnun oldukları bulunmuştur. KZVD'nin en sık rapor edilen işlevi ise önceki çalışmalarla benzer şekilde (Klonsky, 2007) duyguları düzenleme işlevi olmuştur. Buradan yola çıkılarak özellikle duygu düzenleme, sorunlarla baş etme becerileri ve öz-şefkatle ilgili

bileşenler KZVD için geliştirilen önleyici ve tedavi edici çalışmalara dâhil edilebilir. Bununla birlikte KZVD'nin çok fonksiyonlu olduğu düşünüldüğünde, tedavi planını KZVD'nın kişiye özel işlevlerini dikkate alarak şekillendirmek önemlidir. Ayrıca, ağrı toleransının yüksek olmasının tekrarlayıcı bir şekilde ağrıya maruz kalmanın bir

sonucu mu yoksa KZVD'yi yordayan bir etken mi olduğu bilinmemektedir. Bu sebeple, ağrı hassasiyetinin temellerini araştıracak çalışmalara ihtiyaç duyulmaktadır. İlginç şekilde, gruplar arasında ağrı eşiği ve ağrı şiddet puanlamalarında bir fark bulunamamıştır. Bu durum KZVD grubunun klinik bir grup olmaması ve

Çalışmada beklenenin aksine, stresin ağrıyla ilgili değişkenler üzerinde bir etkisi bulunamamıştır. Tek anlamlı bulgu ağrı eşiğinin ikinci SBT uygulamasında düşmesi olmuştur ve çalışma hipotezleriyle çelişmektedir. Bu durum katılımcıların dominant ellerini kısa bir zaman aralığının ardından ikinci bir kez soğuk suya sokmaları ile ilgili olabilir. Gelecekteki çalışmaların iki farklı ağrı metodu (örn., SBT ve elektrik şoku) kullanmaları önerilmektedir. Bir diğer sebep ise STS'nin bu örneklemde istenilen stres yaratıcı etkiyi gerçekleştirememiş olması olabilir. Çalışma örnekleminin üniversite öğrencileri olması, bir çok katılımcının kart testinde kuralı çözmek istemeleri ve stres yaşasalar da son karta kadar devam etmek istemelerine sebep olmuş, ve durum STS'de gruplar arasında fark bulunamamasına ve STS'nin ağrı değişkenlerini etkileyecek kadar stres yaratmamasına katkıda bulunmuş olabilir. Gelecekteki çalışmaların Trier Sosyal Stres Testi gibi farklı stres yaratıcı manipülasyonlar kullanmaları önerilmektedir.

Sonuç olarak KZVD özellikle gençleri tehdit eden, oldukça yaygın, tekrarlayıcı ve çok sayıda farklı klinik durumla ilişkili bir davranıştır. Buna rağmen özellikle Türkiye'de KZVD alanında yapılmış araştırma sayısı yetersizdir. Bu çalışmanın KZVD'yi çok boyutlu şekilde ele alması, hem subjektif hem objektif ölçümler kullanması ve Türkiye'de bu alanda yapılmış ilk laboratuvar çalışması olması sebebiyle önemli bir yere sahip olduğunu düşünmekteyiz.

APPENDIX N: TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü	☐
Sosyal Bilimler Enstitüsü	X
Uygulamalı Matematik Enstitüsü	☐
Enformatik Enstitüsü	☐
Deniz Bilimleri Enstitüsü	☐

YAZARIN

Soyadı : TUNA
Adı : EZGİ
Bölümü : PSİKOLOJİ

TEZİN ADI : UNDERSTANDING NON-SUICIDAL SELF-INJURY: PSYCHOLOGICAL AND PSYCHOPHYSIOLOGICAL FACTORS THAT DISTINGUISH SELF-INJURERS FROM NON-INJURERS

TEZİN TÜRÜ : Yüksek Lisans ☐ Doktora X

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
3. Tezimden bir bir (1) yıl süreyle fotokopi alınamaz. X

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: